

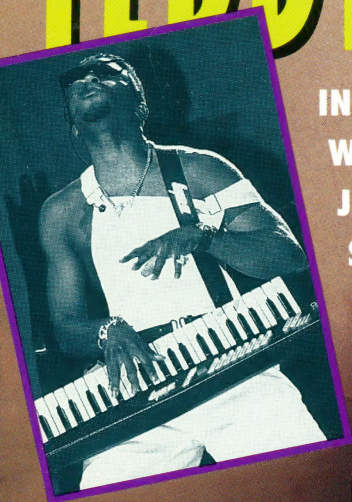
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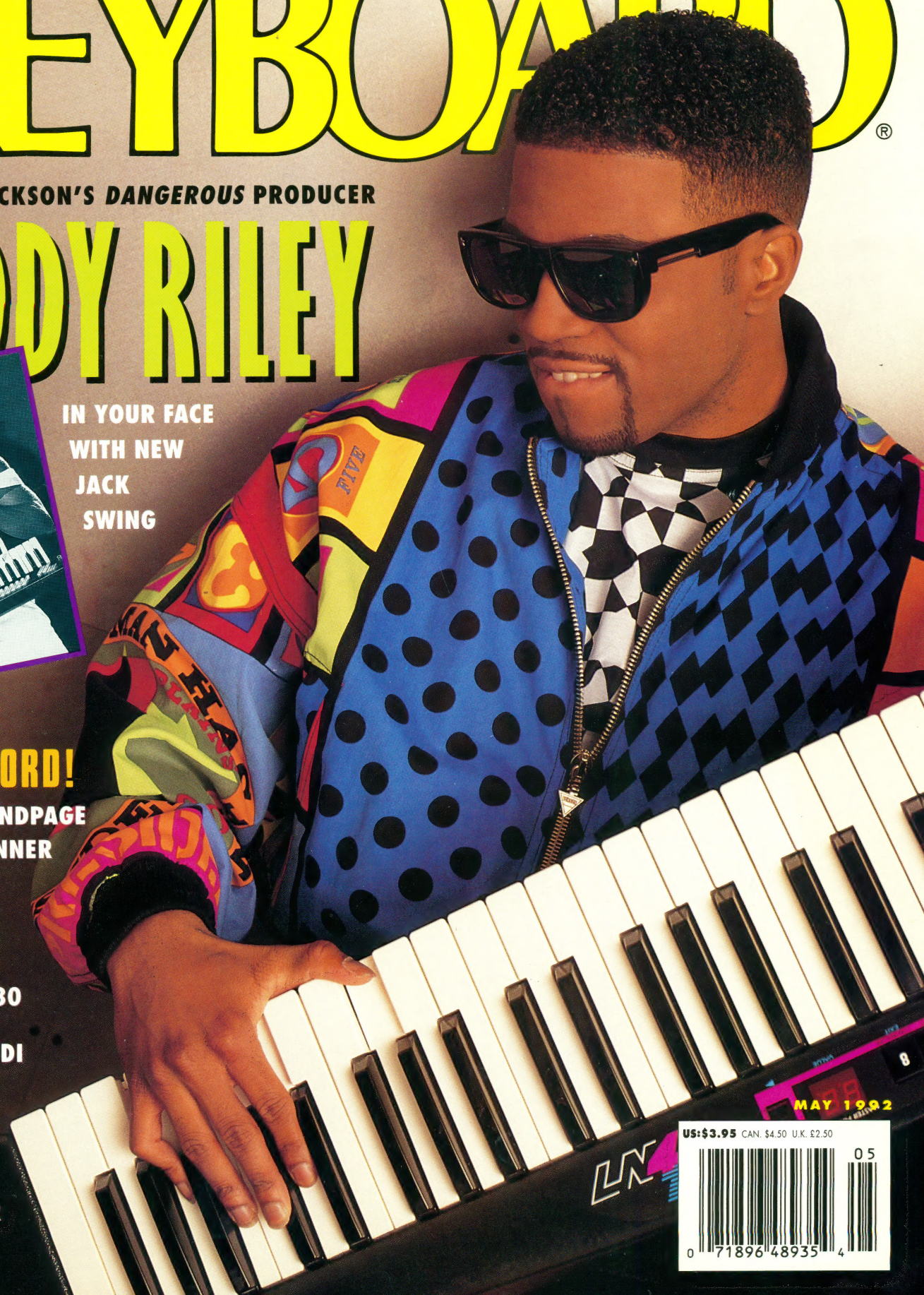
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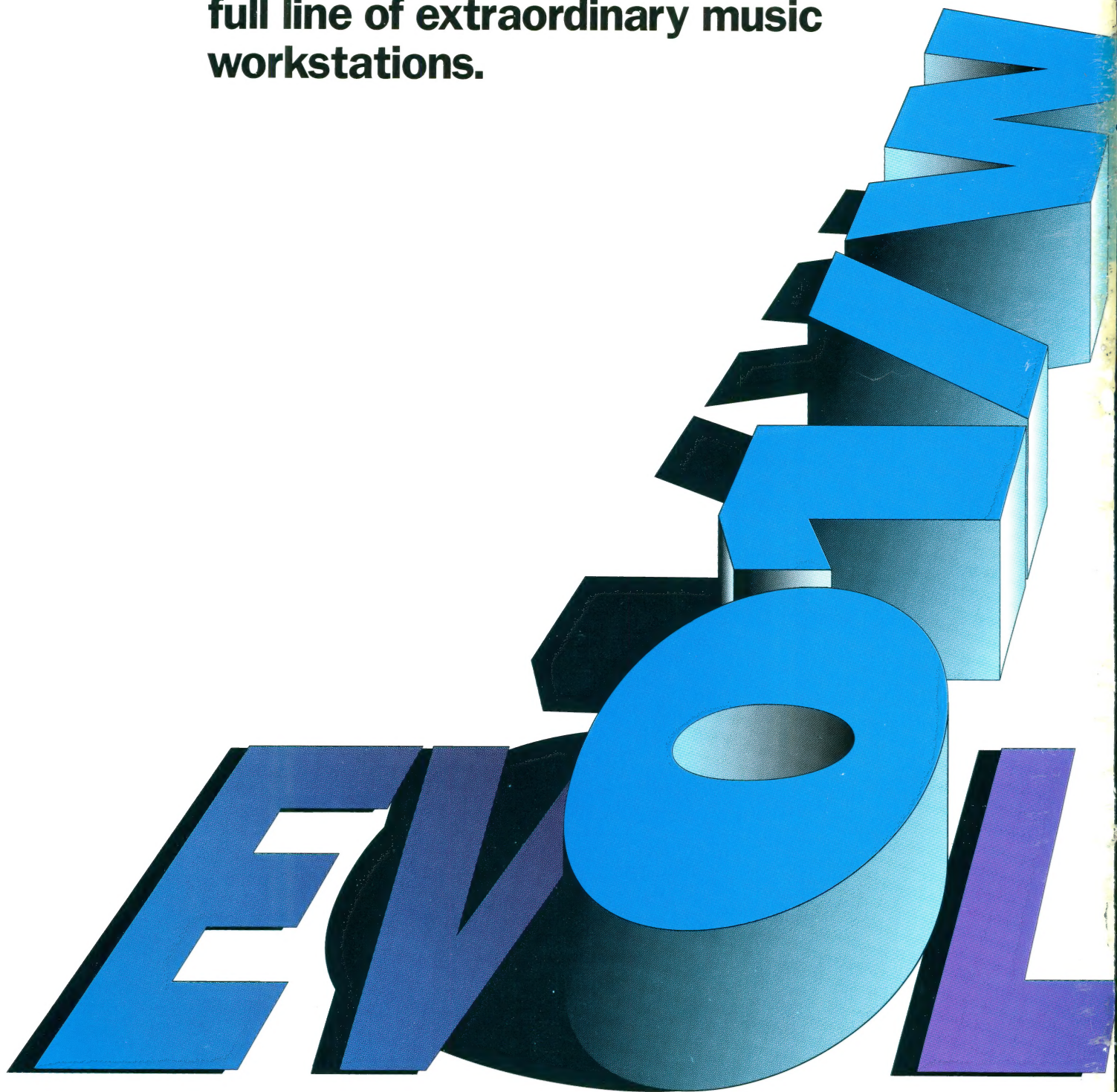


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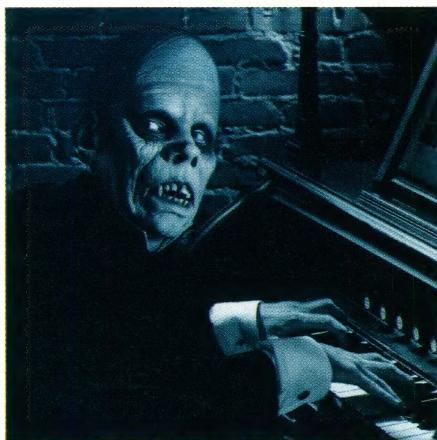
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COVER: Photograph by Todd Gray: Riley with his Lync LN-4. Inset: Photograph by Al Pereira: Riley on stage with Guy.



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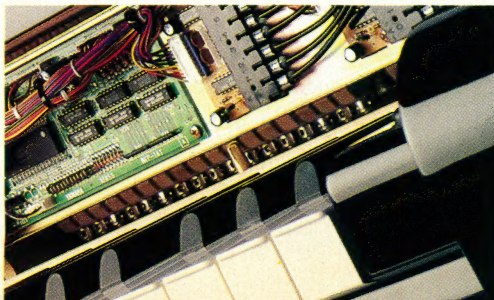
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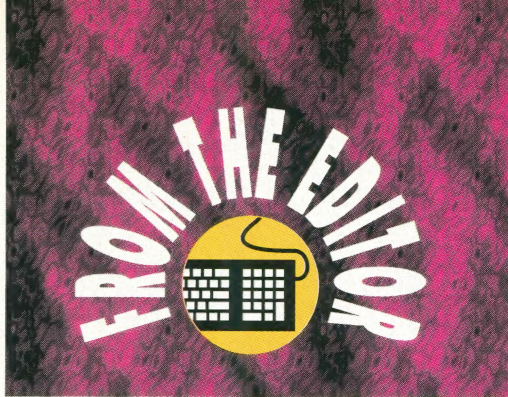
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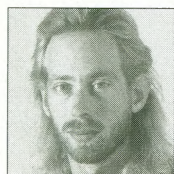
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DOMINIC MILANO



ATTACK OF THE KILLER PIANOLAS

I HERE WE WERE, DOING IT AGAIN. THREE OF US SUAVE PROFESSIONALS doing the too-cool-to-dance dance. You know — the one we all do when passing judgment on another player's work. The cha-cha where you stand in a semicircle with arms crossed on your chest, head just barely nodding in time with the BLINK-blink-blink-blink of the tempo indicator light on the inevitable sequencer. "Oooh, aaah," we said. "Run up and get the rest of the crew. This is great."

But it was after hours, and we could only track down one rest of the crew. "What do you think?" the three of us asked. "Oooh, aaah," was the answer we expected, and it was the answer we got. Over the next few days, as word of what was going on in the company conference room spread, groups of perfectly rational people, some of whom are the most brutal and jaded audience in the world when it comes to things musical and high-tech, stood around as if mesmerized and said, "Oooh, aaah."

Okay, so they were listening to sequences recorded by Chick Corea. Say that accounted for the Ooohs. The Aaahs, well, they came from the fact that those sequences were being played back on a 6' acoustic grand piano. So picture this. It's 1992, and the supposedly ultra-sophisticated staff of *Keyboard* just spent who knows how many man-hours being amazed by a player piano. Never mind that this particular piano — a Yamaha Disklavier — is way more high-tech than some old player piano. You can actually *record* your own performances from the keyboard of the piano itself, or from any MIDI-equipped device. You can also play back MIDI sequences on this instrument. I mean, we're talking astounding stuff, but those bits only added to the Aaah factor. No, the initial reactions of those who made the pilgrimage to our makeshift piano testing room initially came from the fact that you could hit a button and watch this gorgeous piano play itself. Go figure.

The fun and games didn't stop there. Mark Vail had hijacked the conference room because it was the only room in our building big enough to hold two 6' grands, an upright, a couple of synth modules, and the pile of computers necessary for his survey of the state of MIDled pianos. MV spent weeks putting the instruments through their paces and running readouts on things like MIDI velocity levels and aftertouch response curves. Yes, I said aftertouch response curves. Don't believe me? Check out the story on page 80.

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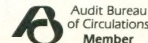
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LASTING POWER

In a field where products come and go as often as Madonna changes hairstyles, it's remarkable to find two keyboards that continue to perform as industry top sellers year after year. The Kawai K4 and K111 Digital Synthesizers.

Frankly, we aren't surprised. There are good reasons why the K4 and K111 have been so popular with musicians and why they continue to be. First of all, they offer the kinds of sounds most in demand. Both are highly flexible in sound programming, easily updatable with tons of new sound programs that show off that flexibility, and best of all, sensibly priced.

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But great specs are only part of the answer. The bottom line on the continued success of the K4 and K111 is something thousands of musicians already know: **THEY PERFORM** — consistently, professionally and reliably. And while they don't try to be the flavor of the moment, they do provide an unbelievably rich arsenal of sounds to complement setups from the most miniscule to the most fully blown. Get some lasting power out of your keyboards — add a K4 or a K111 to your set up. Better yet, a K4 *and* a K111.

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EW-016 - PERC/BASS
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Poll Winners

I was so excited to receive the award as Best New Talent in your Readers Poll [Mar. '92]. And I am so grateful to the readers of *Keyboard* for this honor. This award is all the more special as it is the first I have received, and it came from *Keyboard*. Thank you, too, for all the support you have given me in the past.

Joey De Francesco

Low Lights at CyberArts

As an attendee of the CyberArts '91 Saturday evening concert, I must suggest a couple of corrections to your account of the proceedings [Mar. '92]. While Jaron Lanier's offering could have easily been "one of Saturday evening's highlights," and indeed seemed headed in that direction, it quickly descended to being one of the evening's lowlights. Lanier's demonstration of ethnic instruments was interesting, and Stanley Jordan's guitar virtuosity is quite dazzling, although what either has to do with CyberArts is unclear. But when Lanier went on to offer lengthy, aimless, and rather self-serving noodlings on the piano, the audience began to fidget. There was a collective sigh of relief at the end, and applause not so much for the performance as for having survived it.

As for the show "going off without a hitch," I must have missed the program note about Freff doing a half-hour of childhood recollections and other musings.

Matthew Knight
Azusa, CA

Way Above Average

Although I agree with Craig Hawkins' letter in support of individual components that do one job the best over larger and less effective machines [Mar. '92], I must take exception to his statement that "keyboards, like baseball batters, usually go two for three on hits." Baseball players *occasionally*, not *usually*, go two for three. Any ball player who consistently hit that often would be batting .667. The last major leaguer to hit even .400 was Ted Williams, and that was half a century ago. Either Craig is not much of a baseball fan, in which case his ignorance is excusable, or he knows of some super-human player unknown to the rest of the world. If the latter is the case, I wish he'd contact a New York Yankee scout — they sure could use someone like that.

Danny Brill
New York, NY

General MIDI

I would like to commend Chris Meyer for giving both points of view, not just his own, on General MIDI [Mind Over MIDI, Feb. '92]. The problem with these types of standards is that they choke the life out of creative thinking. Imagine this example: In 1980 a standard for micro-



computer operating systems is developed, and all manufacturers agree to it. The top-selling microcomputer in 1980 was the Apple II. Now, here we are in '92 and we have nothing but rehashed Apple IIs. No PCs. No Atari STs. No use to serious musicians. A frightening thought, wouldn't you agree?

In a similar but real situation, a computer language developed at AT&T called C was standardized. This was supposed to make it easier to take software from one computer system to another. As soon as the standard was set, manufacturers started breaking it. Now there are many different — very different — versions of C on the market.

If the MMA really wanted to set a useful standard, they should create a standard way for software to talk with different MIDI equipment and allow the software to tell the instrument what it needs. The instrument or software could then remap itself to fit the environment. A tough task? Yes, but useful and likely to catch on. With this method, the better sound sources could make things sound better without killing off the low-price models that many companies may want to produce.

Personally, I hope that GM falls flat on its face. If a standard had been set for word processors back in '82, I would be writing this letter on Wordstar 2.0 instead of Word Perfect for

Windows. I am not willing to trade the future of MIDI so that companies like Microsoft can have an easier time now.

Cliff Suttle
Novi, MI

Leon Theremin

I cried after reading the last word in your story on Leon Theremin [Feb. '92]. It was beautiful, and very sad. Humanity is so weird to treat such an artist as "politically sensitive" and "threatening." So when's the next Gulf/Cambodia/Vietnam/Nepal/Slav conflict? And will it somehow involve MIDI?

Yvonne Thacher
Leicester, England

Organ Abuse

[No, it's not what you think. "Organ abuse" is how Wilfred Høsteland described the approach to playing on Hammond organ taken by rock musicians. In his Feb. '92 letter, Høsteland characterized the typical rock approach to the Hammond as "clownish," and observed that "giving a Hammond to one of these people is exactly like giving a clockmaker's tools to a blacksmith." Perhaps it will come as no surprise to Høsteland that some of our readers have a different opinion.]

Mr. Hostileland [sic] states that rockers never used the Hammond as a real musical instrument. Has he heard any Boston or Kansas? How old is this guy? He also complains about companies cutting Hammonds in size. Wilfred, if everybody ate the same food you eat at the same time that you did, then walked over to the same kind of Hammond that you have and punched up the same preset you use to play the same song that you do, it would be a pretty monotonous world. Ease up, and let a guy carry a smaller case if he wants to.

I am grateful to Mr. Norway for making me realize that I could never be as closed-minded toward anything in the world as he is toward our "abuse" of the Hammond organ. If you don't like it, Wilfred, fine, but if you deny the impact that the "abused" Hammond has had on the musical world, you are simply cheating yourself.

Jerome J. Schaedle
Schaedle Pipe Organ Services
Cincinnati, OH

Questions of Faith

I can't understand why some of your writers feel they must call people names whenever they disagree with their views. As a Christian, it hurts me to see my fellow Christians being called "paranoid Swaggart zombies." Name-calling is no substitute for rational discussion. One of your writers (who happens to be one of the offenders) said it best: "Life would indeed be easier if we had the right to shut up those who prick our consciences. But once society decides that life is

easier with minds closed, what have you got?"

Also, I feel that some of your writers have problems keeping their opinions out of what should be objective articles. I studied journalism in college, and one of the basic rules was that journalists should be objective, and that opinions belong on the editorial page or in the Letters column. However, the remarks I mentioned above were all in feature articles, and that's not good journalistic practice.

I'd like to continue learning more about keyboards from you, but right now it hurts too much, and I don't need the extra stress. Maybe if you can learn to be really tolerant, then I'll enjoy reading *Keyboard* again. Please cancel my subscription.

Cindy Groves
Friendly, WV

[Robert L. Doerschuk replies: "As the offender quoted in Groves' letter, I'd like to express my regrets at being the apparent cause of some pain. Inflicting discomfort on readers is not part of my agenda. But I must make several points. One, the quotes cited by Groves were from my introduction to our Feb. '92 feature on the work of Frank Zappa, whose political and social opinions play a dominant part in his work. If I failed to discuss these aspects in something more colorful than a New York Times-style drone, I would be doing a disservice both to the artist and to the readers seeking insight into his art. This takes me to my second point, which is that during long hauls in two major journalism schools, I too have been subjected to sermons on the virtues of journalistic objectivity — virtues to which, by the way, I heartily subscribe when called upon to write traditional straight news stories. But writing about the arts is different. Where reporting on natural disasters or government shenanigans is about facts — either the plane crashed or it didn't — art, including music, is about feelings. For all the hard-core technical data one could shovel forth in analyzing Zappa's music, the foundation on which it all rests is feelings — his feelings, mine, and yours. It is therefore not a question of right and wrong, but one of visceral — i.e., subjective — response. Also, I felt that the reference to 'paranoid Swaggart zombies' was sufficiently specific to not offend those who feel that they don't gather under that umbrella. Neither I nor, I imagine, Zappa is inclined to excoriate all people of faith — at least no more inclined than believers would be to lambast all non-believers."] "

The Missing Mute

The address for Mute Records that you printed in your Notes From The Underground column on Fortran 5 [Feb. '92] is no longer valid. I renewed my subscription anyway.

Elliot Levine
Silver Spring, MD

[Thanks, Elliot. We could use more forgiving readers now and then. The new address for Mute, by the way, is 5 Crosby St., Fifth Floor, New York, NY 10013.]

Back Cover Blues

I am greatly offended by the back cover ad now being run by Yamaha on its QY10. Its language and message epitomize all that is dangerously wrong with our music industry. "Don't just listen to someone else's music, create your own song," the copy entreats. The next sentence then boasts, "With 76 musical excerpts built in, you don't have to be talented and you don't have to be musical. You just have to be human."

The kind of mentality this product purports to appeal to is scary. Every working musician I have shown this ad to has reacted with disgust. Yamaha should be ashamed. We all should be ashamed for contributing to the kind of musical environment where such a sales pitch would even be considered, let alone tolerated.

If we continue to condone and promote the kind of recycled technological garbage currently passing itself off as music, then we real musicians deserve to eventually become extinct and replaced by machines that don't have to be human, or inspired, or driven by dreams.

Richard Rosing
N. Hollywood, CA

Connor's Comeback

[Although we've only gotten one *Creative Options* column from prodigal *Keyboard* contributor Connor Freff Cochran, even that singular event seems to have sent a stir through our readership.]

For quite some time, I've been getting confused, mad, and irritated. Every now and then I've even just about had a nervous breakdown. At least I've been able to come up with a name for this condition: Frefflessness.

So it was a great delight to open the Feb. '92 issue and see that Connor Freff Cochran has returned. Only one thing surprised me about it — the fact that it didn't surprise me at all. I've been using almost exactly the same method described by Connor to seek my true path. I've changed my lifestyle, quit one school and begun studying something totally different in another school, stopped the drinking and occasional drug use that seems to be wedded to our concept of musicianship, and getting temporarily selfish.

I suppose that if I can cut the crap, then everybody else who wants to do the same need only consult Connor Freff Cochran's Feb. '92 column. May we grow and grow, and may we

Send correspondence to: Letters, *Keyboard*, 20085 Stevens Creek, Cupertino, CA 95014.

NEXT MONTH IN KEYBOARD

ELP

They're ba-a-aack. Fifteen years after their last U.S. tour, prog rock's answer to Cerberus returns with a new album and a string of concert dates. Keith Emerson explains what took him, Greg, and Carl so long. Plus transcriptions, and a loving look at Emerson's vintage modular Moog.

FAITH NO MORE

An eyewitness report on the making of *Angel Dust*, the latest release from Roddy Bottum and his fellow thrashers.

KEYBOARD CLINIC: ENSONIQ VFX

Helpful hints on programming hip sounds and effects, shortcutting work routines, and getting more for your money from this popular sample-playback synth.

MICHAEL BODDICKER

A legend in session circles discusses his work on *Robocop 3*, *Starfire*, and other films, and offers candid views on the state of electronic music.

KEYBOARD REPORTS

Roland's Canvas and Brush, Dr. T's Interactor, Software Toolworks' Miracle Piano, and other hot new items.

LETTERS

never be able to say that we are grown.

S. A. Johannsson
Reykjavik, Iceland

Keeping In Touch

I agree wholeheartedly with Robert L. Dorschuk's assessment of Stanley Brown's contribution to Keith Sweat's latest album [Mar. '92]. Even more than his keyboard playing, however, I think his production and writing skills are excellent. I'd like to write to him directly. Do you have any advice as to where I should address my letter?

Daniel Remier
Urbana, IL

As a die-hard Thomas Dolby fanatic, I would like to thank you for running that fantastic interview with him [Jan. '92]. It's interesting that while Dolby's previous album, *Aliens Ate My Buick*, seemed to consist predominantly of Fairlight sounds, his Fairlight is now relegated to the status of being a "\$20,000 sample library." Even more noteworthy is the fact that *Astronauts and Heretics* was put together on a Macintosh. That says a lot about how far technology has travelled over the past few years.

One question: Since Dolby is on the Keyboard Advisory Board, can I send fan mail to him — or to any other board member, for that matter — through *Keyboard*?

Joe Warmbrodt
Houston, TX

[Send a letter to any artist interviewed in *Keyboard* to us, and we'll happily forward it to his or her home or business address, depending on what information we have on file.]

Crashing Windows

All hail the artistically correct Jim Aikin [Other Windows, Feb. '92]. It seems that he has the blessed ear that can tell me what music is and is not! Is it something that you simply live to hear or that makes you feel good? Of course not! More important is that it should be a middle finger raised high to lawyers, accountants, and the Devil himself — television! Please! If I think that the sound of a flushing toilet is music, it is. If I think that the tweeting of a bird is music, it is. Even if I think that a mindless Top 40 song is music, it is. Aikin's preachings about the merits of musicianship are no better than what record company executives say, in that both seem bent on telling the world what real music is or should be. Musicians, do not fall into the trap of making music just to be different, which is the same thing as making music just to be mainstream. Do what you like!

Aaron "Phrenzy" McClay
Young Godfather Coalition
San Francisco, CA

[Jim Aikin replies: "Okay, I'm mystified. One of my main recommendations in the February column was that people 'refuse to compromise. . . . Do what pleases you.' So what is McClay upset about? At a guess, he's incensed because I commented that a lot of synthesizer music is 'cretinous pap.' His position, if I understand it correctly, is that nobody is entitled to judge the quality of any piece of music. I wonder if he puts this theory into practice by buying CDs at random."]

I agree with Aikin's opinion that popular music has become mundane, boring, dreary, inept, and stagnant. I also agree that this is partly the fault of the awesome technology that facilitates the creation of music these days. But I do not agree that the "upper echelons of music companies" are also to blame, nor do I agree with his remedies.

Businesses look for and cater to the needs and wants of the public in order to make a profit and hence stay afloat. Music executives are indeed providing most of what you hear on Top 40 stations — songs based on the persistent, metronomic beat of the kick drum. But they are not forcing this stuff on the public. The public wants it! The blame for this onslaught of audio garbage doesn't belong to accountants and lawyers but to the general public itself — specifically, from the average person's perception of music. As you can easily discern, this perception is very limited.

The solution lies in trashing your television set or aiming verbal terrorism at radio stations, but rather in redefining our educational focus. Schools force children to whittle the world down to simple, small pieces. These are not conditions in which an art that demands complex thinking can flourish. So don't blame corporate executives for the problems. They're just trying to survive and make a buck.

David Chick
Gloucester, Ontario

Stepping On Nails

I've just finished reading the Mar. '92 letters on your Cyberpunk II story [Jan. '92]. Shawn Rudiman's letter critically mentions Nine Inch Nails. Well, I read your Apr. '90 NIN story, in which Trent Reznor seems to display far more artistic integrity than the sci-fi disco boys from Hell. I am not wholly impressed by artists who strive to classify themselves by using ideas from pseudo-literature. These guys play too many role-playing games.

Jeremy L. Wilkins
Seminole, FL

Dream On

[Robert L. Jennings' Jan. '92 letter, in which he describes his "ultimate dream machine," seems to have stimulated other daydreamers to send us their designs for the perfect keyboard instru-

ment — or take issue with Jennings' vision.]

I was talking with a friend of mine about ultimate keyboard designs, and he kindly lent me a brochure on the subject. He lives a bit uptime from this century, so he had to pry it from my hands before I caused any temporal loops or other disasters. But I remember the gist of it.

1. Advanced Anticipation Thought Control. Pioneered by the ill-fated Romanian Zlatna Panega synth, the AATC system allows complex musical pieces to be performed by means of a generative grammar based on *anticipating* the user's brain wave patterns. This is possible because these patterns are quantum-mechanical in nature and hence stretch from minus infinity to plus infinity in both space and time. The patterns themselves are picked up by a narrow-band quantum resonance, which tunes directly into the hidden variables involved and thus conveniently gets rid of all those messy wires. Since it can also get rid of the keyboard, one of these has been included as an option — it can take a while for the average ivory and silicon molester to get the hang of AATC.

The software takes the anticipated brain waves and uses them to manipulate various musical meta-constructs in a stochastic way, resulting in a net negative flow of musical entropy. Fractal, strange loop, and other chaotic processes have been included for a "fuller and more natural musical experience." Software includes Baroque & Roll, Solo Jarrett, Plinkety-Plonk Academic, Aging Cyberpunk, New Age Mush, Deep Synth Film Score, ECM, and, of course, Gameshow. Optional Baad Rapper With Additood™ software speaks for itself, while a unique FM4U preset guarantees a hit single by producing enough sus-4 chords to get airplay of your music on all the major radio networks.

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Continued on page 14



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ALESIS D4 OWNERS: EVER thought about letting an electric guitar-playing friend add a percussion idea to one of your rhythm sequences? You don't even need a percussion trigger. Try plugging the guitar into one of the D4's trigger inputs and assign whatever percussion instrument you want to that trigger. The guitar should have enough gain to trigger the *sound*. If you need more gain, patch a compressor or distortion pedal between the guitar and the D4 trigger in. Triggering a sound also causes the D4 to transmit a MIDI note-on message that you can record in your sequencer. You might need to adjust the gain, decay, and velocity curves on the D4 in order to respond appropriately to your guitar. Playing muted notes seems to work best.

— Ray Legnini, Broomall, PA

SYNTHESIZED GUITAR TIPS

IN HIS MARCH '91 COLUMN ON arranging guitar parts for synthesizer, Eric Turkel disclosed some excellent ideas, but overlooked one of my favorite tricks, unison pitch-bend, where a note played on one string is bent up to match the pitch of a note sounded by another string. Here's how to do it on a multitimbral synth.

Assign the same "guitar" patch twice as two different instruments in a multitimbral setup, and set them both to the same MIDI channel as your controller. Set instrument 1 to respond to pitch-bend data, with a range of two half-steps; disable pitch-bend response on instrument 2. [Ed. Note: If your controller won't allow you to independently set the pitch-bend response of each instrument in a multitimbral setup, copy the source patch to a new location in memory, set it to ignore pitch-bend, and use both patches in the multitimbral setup.] At this point, when you roll your pitch-wheel back to the full negative position, you will hear two notes a major second apart. The lower note is the instrument responding to pitch-bend. As you let the pitch-bend wheel return to its zero position, the lower note will bend up into unison with the stationary note.

If your synth has the capability, detune the instruments in relation to each other. Tune the one that responds to pitch-bend to a major second below the non-bending voice. Now you have access to three intervals with your pitch-bend wheel. With the wheel at full positive, you'll hear a unison; with the wheel at neutral, the voices sound a major second apart, prepared for playing unison bends; with the wheel



at full negative, the instruments sound a major third apart. Experiment with different detuning intervals and pitch-bend ranges to achieve some pedal steel-type effects.

Another pitch-bend trick is useful for imitating those ever-popular dive-bomb effects. When an

electric guitar player uses the whammy bar, because of different string tensions, individual strings bend by different intervals. To simulate this, use a multitimbral stack of similar instruments, each with its own pitch-bend range. Again, if possible, detune voices relative to their bend range to access more intervals. For example, if you set the bend range for an instrument to 5, you would detune it by -5 so that unison occurs with the pitch-bend wheel at full-positive. When you stack five or six instruments with different bend ranges, play a three-note power chord and run the wheel down to full negative. At the bottom, you'll get a detuned mess, which is precisely the effect you're shooting for.

— William Hartzell, Malden, MA

OWNER'S MANUAL MANAGEMENT

It used to take me up to ten minutes to find the proper user manual for a piece of equipment. I had manuals and documentation scattered around the studio in closets, under magazines, and in the piano bench. At last, I developed the following plan to resolve the problem:

- (1) Gather all manuals, specs, supply catalogs, photocopied articles, and whatever other important documentation you need and can find.
- (2) Check for manuals with printing that comes within less than 1/2" of the inside margin; remove offenders from the collection.
- (3) Find a print shop that has a three-hole paper drill, and have them drill your entire stack. (The drilling will only take a minute.)
- (4) Organize the manuals and whatnot by type: keyboards, mixers, tape decks, amplifiers, effects, computers, sequencer documentation, track sheets, supply catalogs, etc.
- (5) Find enough three-ring loose-leaf binders to handle the entire stack, while allowing room for some expansion.
- (6) Once the manuals are loaded into the binders, put a label on the outside edge of each binder, then make a list of the manuals enclosed.
- (7) Add an identifier tab to the outside edge of the first page of each manual. Stagger the tabs down these pages in order to keep each tab as visible as possible. This will enable you to find any manual quickly without paging through the entire binder.
- (8) Add a few blank pages to the beginning of one particular binder for telephone numbers, addresses, notes, etc.
- (9) Other binders you can prepare: sheet music, song lyrics, song ideas, floppy-disk holders, equipment inventory, insurance policy, etc.
- (10) Find a convenient place to locate your binders for fast reference. Always keep them in the same spot.

— Dan Lindholm, Milbank, SD

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LETTERS

Continued from page 8

of a string quartet with a genuine *thirtysome-thing*-type bad atmosphere or with a lead guitar part that has a temper tantrum and storms off unless you promise it a 20-minute solo in the middle of every piece. You can configure the hardware so that it leers at the women (or men — all software is certified bug-free and non-genderist) in the front row and won't play any drum parts unless you feed it beer first.

3. Apple Mac Front End. This is entirely unnecessary, and is included only to impress your friends.

4. Optional 16-x-2 Line LCD & Data Entry Slider. For those die-hard Golden Age of Digital traditionalists.

5. Portable. This miracle of modern technology runs off of two AA batteries, which are recharged from built-in solar panels. Seeing as how you get enough power to fill a medium-sized stadium, this is quite impressive. Even more impressive is the fact that the hardware lives in a 1U case. How so? Well, without giving away any trade secrets, let's just say that there are ways of creating lepton-sized singularities and then harnessing the shifting space-time stresses around them. As power sources and computing hardware implementations go, this technology is cheap and powerful, doesn't need a mains connector, and is mostly harmless. (Okay, so once every few millennia one of the babies gets loose and before you know it the whole solar system has imploded. But that's a small price to pay for this kind of *sound*!)

So there you have it. Fortunately, I've already patented these ideas, so you won't make any money from them. The prototype should be ready in 50 years or so. Oh, and if you see my friend, tell him everything's fine. Just fine. . . .

(Last word: MIDI? Come off it!)

Richard Wentk
Bath, England

I thought that some of Jennings' ideas were not very realistic. His machine would be more expensive than some cars. But I think that a powerful workstation could be developed inexpensively by borrowing a few ideas from the personal computer industry.

1. Open Architecture. If a synth is a computer that makes sound, why can't it use non-proprietary software? With an open architecture, different companies could produce different programs for the same machine, and the hardware could be used in ways not imagined by the original developers. Imagine: a generic editor-librarian on your master keyboard!

2. Modular Systems. The cool thing that IBMs have is expansion slots, which provide for hardware you don't think you need yet but don't want to forfeit the ability to use. Why not put everything on a fast parallel board buss,

hopefully in the range of 32 bits or above? The CPU, memory boards, disk drives, and tone generators — yes, tone generators — would be replaceable modules. If something better comes along, you would just open the back with a screwdriver, take out the old card, and put in the new warp-drive thrusters. You could also mix different types of synthesis on the same machine, or even bring in sampler boards.

3. Keyboard and Screens. Part of this is Jennings' idea. The musician and the instrument should communicate easily. The instrument would "talk" to the musician through a large and legible screen. The musician "talks" to the instrument through the keyboard. We'll need a few sliders, wheels, and pedals, but they should be programmable. On the subject of keyboards, how about adding a port for a PC QWERTY keyboard? That way, programming could be measured in hours, not days.

4. Memory That Really Is Easily Upgraded. This goes back to an open-architecture, modular system, with plug-in-and-play hardware and software that can handle it all and avoid traps like DOS's "can't handle over one meg without gimmicks" memory limitation. You simply cannot tell how much memory tomorrow's software will need.

5. High-Speed Processors and Chips. Nothing spectacular, just something that won't be obsolete overnight. If it's modular, we should be able to replace it, but we shouldn't need to buy a new one every year. When I see a 50MHz 486 machine, I can't help wondering what it could do for the good of mankind's music.

6. Low Cost. If a laptop 386 computer costs \$1,500 through mail order, and a good master keyboard costs \$1,000, then a combination of the two shouldn't be more than \$2,500.

That's it: the ultimate keyboard! I'd like to ask for a readable manual too, but that might be too much.

Charles Peyton Taylor
Monterey, CA

More Killer Guitars!

Is it my imagination that the electric guitar sounds on 95 percent of all synthesizers are so wimpy that they're unusable? (The EPS and Wavestation are unaffordable exceptions.) Manufacturers seem to insist on providing mega-piano samples and drum kits in every module, which only duplicates resources most of us already have. So how about an E-mu Proformance specializing in guitar samples? An Ensoniq SQ-R with mega-guitar samples? A Korg card set for the M series with decent guitar samples (I don't need the koto and banjo)? My imagination runs wild!

David A. Turner
Albuquerque, NM

Continued on page 159

OTHER WINDOWS



JIM AIKIN

HOW TO SCREW UP YOUR CAREER

MAKING A LIVING BY PLAYING MUSIC is a wonderful thing, if you can manage it. It's a dream most of us have. All too often, though, the dream goes down in flames. We wind up workin' in a gas station, *as Frank Zappa* so pithily put it.

Even if you don't wake up one morning and find that you've become the minstrel of Madison Square Garden, music can be an immensely rewarding lifelong passion. And let's face it, not all of us are suited, either by personality or by talent, to be at the Top of the Pops. That's a good thing: there wouldn't be room enough for us all on the radio playlists.

People get into music for lots of other reasons besides the desire to make a living, and that's a good thing too. (Wouldn't you hate it if all the bands in the world were filled with people who acted like accountants and dentists?)

But let's say you want to take your dream all the way. You've got some songs, and some talent, and some gigging experience under your belt, and you're ready to roll. The bad news is, wanting and being ready are, as the logicians say, necessary but not sufficient. By themselves, wanting and being ready won't get you into a successful career. (Not unless we define "being ready" in very strict and complicated terms, and after the fact — like, if a given artist is successful, then whatever they did was "being ready.") Somewhere along the line, you're likely to find yourself walking nose-first into a plate glass window, or lost in the jungle, or sinking in quicksand — pick your own metaphor. Somewhere between the dream and the money falls the Shadow.

So let's look this Shadow square in the eye. What is it?

The Shadow has no independent existence. It operates entirely through you. Its only power lies in your behavior — what you do and don't do.

Now, there's a certain type of person who believes that when bad things happen, It's All Their Fault. The old ego has this urgent need to protect itself from the painful truth that we're responsible for the results of our own acts. If you think I'm going to tell you how to manipulate or outflank Them so as to get your career on track, you're going to be disappointed. Them are not something you can control. A lot of Them are insensitive, or bigoted, or just plain crooked; no argument there. Unfortunately, Them will never change. What you can change, or at least wrestle with, is your own Shadow.

When somebody's life is being run by the

Shadow, how are they acting? Maybe the most fun way to look at this question would be to offer some recommendations for exactly how you can let the Shadow run your dreams into the ground. How do you go about screwing up a promising career?

Believe in Magic. This is a method I've practiced with some (lack of) success. During the years when my primary source of income was playing music, I had only the foggiest, most rudimentary notions about how the upper echelons of the music business worked. I knew that you made demo tapes and took them to a record company, but that was about as far as my understanding extended. After that — well, they like your tape, so they make you a star, right?

I never looked down to see the slippery stepping-stones that lay between me and my goal. (I can't remember that I ever visualized the goal clearly, either.) Stepping-stones like having a business plan for the band and commitments from individual band members about how they're going to contribute. Developing the kind of tight show that will play in larger venues. Getting a manager. Studying the craft of songwriting.

There are so many ways to believe in magic. Maybe you'd prefer to believe that those who are successful have had good luck. If you cling to that belief you'll never have to look at how hard they worked. Or maybe you'd like to believe that you don't need to practice, that you already play well enough. (And never mind those few little fluffed notes; they don't count. People will judge you by your intentions, not your performance — right?) Another option: Believe that your genius vocal stylings will somehow be audible through the distortion of a bad P.A. system. Music is partly magic, anyway — so where do you draw the line between necessary magic and wishful thinking?

Maybe you've got a record contract already,

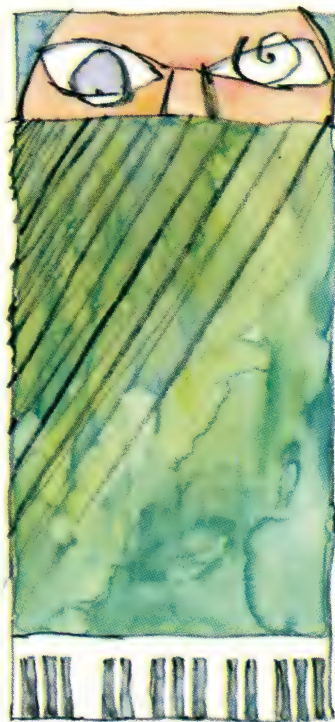
and your first CD has just hit the stores. Congratulations! You're even more vulnerable to the belief in magic. As a veteran record producer said to me once, "People think that when they get a contract, they've got it made. But that's when the hard work starts."

Magic thinking may be harder to resist when you're a star, or on the brink of stardom. People around you will feed it. They'll tell you what they think you want to hear, or what suits their own purposes. It's up to you to be hard-headed, to sort through the phantoms and fantasies.

Don't Read the Fine Print. This is another form of believing in magic. When somebody offers you a contract, be it for management or recording or whatever, trust them when they tell you that those confusingly worded clauses aren't important. You're a creative person; you shouldn't have to get a headache trying to understand all that legal mumbo-jumbo!

The sad truth is that a single clause in a development contract, the kind you sign *before* the record company signs you, can destroy your career. It's when you're starting out, when you can least afford legal expertise, that you may need it most. If your business plan doesn't include a few hundred dollars (at the very least) for attorney fees, and if you haven't networked with other musicians to learn who the good entertainment lawyers are in your area, you're walking around with a sign on your back that says, "Kick Me Hard."

I know of one up-and-coming artist (not a keyboard player) who inked a long-term management contract. The manager was negotiating



These days, Jim Aikin is trying to develop his long-dormant career as a science fiction writer. He would prefer to think that he's stopped screwing it up.

OTHER WINDOWS

with some very heavy-hitting record companies, the record contract appeared to be in the bag — but then the artist fired the manager! Why? According to my informant, the artist was getting bad career advice from his mother, who thought he was getting ripped off. (That suggests two more ways to screw up your career: "Depend on your family for business advice," and, "Never compromise: Demand to have it all.") The trouble is, this management contract entitles the now ex-manager to a hefty slice of any income that the artist earns for several more years. So what other manager is going to work with that artist, knowing how the pie is going to be sliced up? Maybe somebody will take the chance, or maybe nobody will.

A contract is a legally binding document, and until it's signed, *everything* in it is negotiable. After it's signed, nothing is. If you're in doubt about any of the provisions, don't sign until you get advice from an outside expert.

Walk All Over People. You don't have to be a star to practice this one. Not showing up for rehearsals, turning up too loud during your solos, badmouthing fellow musicians behind their backs — there are so many effective ways of pretending that you're the center of the universe. And most of them will have a deleterious impact on your career.

The truth is, even a solo career is not something that one person does alone. A successful

solo performer depends on a very large support network, from the person who answers the phone in the PR department to the person who runs the stage lights. Treat people like dirt and they'll treat you like dirt. The lights will go out in the middle of your third song, and you'll never know whether it was an accident, or revenge.

You need a healthy dose of ego if you're going to stand up in front of people for a living and say, essentially, "Look how great I am!" You need to have faith in your own vision and set your own high standards. So here again, where do you draw the line? When in doubt, do unto others as you'd have them do unto you.

Get Loaded a Lot. I'm not going into a big sermon about the evils of drugs and alcohol. For one thing, the people who need to hear that kind of sermon always tune it out. They think you're a jerk, or that you're talking about somebody else.

Okay, twist my arm. Maybe just a little sermon. The sad fact is that drugs and alcohol kill a lot of talented musicians. There's nothing romantic about dying. It's messy, and incredibly painful, and even scarier than that, and it tends to screw up your career. As a publicity stunt, it may help you sell records, but you won't be there to cash the royalty checks. And even if you don't die right away, your career is likely to be blown apart by the injudicious ingestion of psychoactive chemicals. Look at Jaco Pastorius — arguably the greatest electric bass player of all time, and there he was, hanging around local bars in Flori-

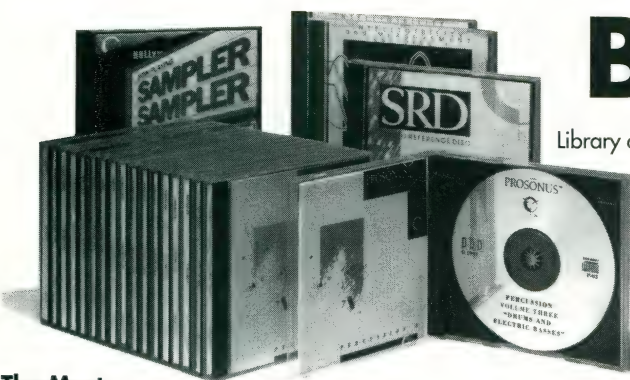
da begging to sit in with the band. And that was what his "career" was like for a couple of years before he was beaten to death.

But of course that won't happen to you. You're different.

I don't want to indulge in scare tactics. Most of us are immune to them by now, or too sophisticated to pay any attention. I'll admit that it's also possible to be addicted to chemicals for years without it having the slightest effect on your career. There have been prime ministers of England who by today's standards would be considered raging alcoholics. The trouble is, drugs and alcohol have a tendency to turn around and bite you — and it's very, very difficult to control when and how that will happen, or even to see it happening when you're in the middle of it.

There's this mystique about drugs and music. Rock and roll is about living on the edge, and drugs will certainly help you do that. But you don't have to swallow the myth whole. Some of the baddest metal musicians on the planet are actually sweet guys, savvy businessmen, and meticulous musical craftsmen. The thing with the tattoos and the chains is utterly bogus. It's an image that sells records, that's all.

The truth is, drugs *can* unleash your creativity. For a while. At a price. If that was all they did, a lot more people would use them. A few months ago I talked with the sister of a fairly well-known keyboard player, now deceased. She told me that he felt he couldn't compose



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- Electric Guitar 1 & 2
- Acoustic Guitar
- Trombone
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at his peak without using mass quantities of cocaine. The band was relying on him for new material, and he was relying on coke. And now he's dead. There are people who will die rather than face the Shadow.

Keep Changing Your Goal. This is another dandy method. I know a woman who recently completed a degree in journalism. But now she's decided she'd hate working for a newspaper. What would really ring her chimes, she's convinced, would be to be a therapist. She's 40 years old and going back to college again. Meanwhile, she makes a living as a waitress — and in spite of being incredibly bright and capable, she's in no danger of ever having to stand up in front of the world and take her lumps as a successful professional.

Put Yourself Down. If you program yourself with constant negative messages about your worth and your prospects, you're almost certain to fail. But maybe you're so talented that even a crippling dose of self-doubt isn't enough to keep success from jumping out and biting you. Desperate measures may be in order. You may need to —

Have a Mysterious Accident. One of the well-thumbed books on my self-help shelf is *Overcoming the Fear of Success*, by Martha Friedman. If you find yourself trapped in a recurring pattern of failure, I urge you to buy this book and read it. She talks about how our parents program us for failure, how we sabotage our own efforts by constant self-criticism and

negative internal messages, how beliefs lurk in the unconscious about the deadly danger that will follow being too successful, how we cling to a marginal success (being a backup musician, for example) rather than risk going all the way.

Over and over, she gives examples of people who were seemingly on the way toward the realization of their dreams when suddenly, inexplicably, they found themselves struck down by illness, crippling anxiety, family responsibilities, boredom and restlessness, you name it.

Many of the forces that keep us from being successful appear to be outside us. But that can be an unconscious defense mechanism: "How can you blame me for being a failure? It isn't my fault that the car got towed so I missed the audition!" Well, maybe it was the result of forces outside your control, or maybe you set yourself up by parking in a red zone. And the hell of it is, your fear of success may be giving you some real bad information about whether or not you cre-

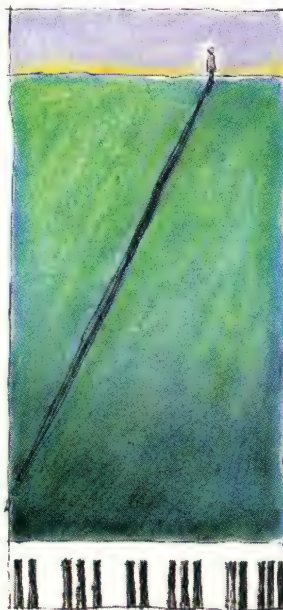
ated the "bad luck."

When you see a pattern of bad luck in your career path, be suspicious. Maybe you don't really want to be successful. Maybe you're unconsciously protecting yourself from the imaginary bogeymen that will jump out and eat you if you ever do something really great.

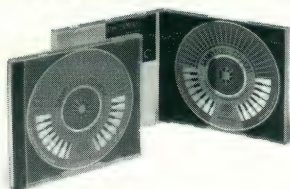
... Or maybe your bliss really does lie down some other path than stardom. Maybe you thrive on the direct interaction with the audience that happens in a piano bar. Maybe what rings your chimes is watching your young students sail proudly through their Mozart sonatinas. There's no need to beat yourself up for not living up to somebody else's dreams of success. Another of my favorite books is Marsha Sinegar's *Do What You Love, the Money Will Follow*. One of her main messages is that you get to define success for your-

self, for your own life. You don't need to enslave yourself to anybody else's vision.

The choice is yours. But whatever path you choose, don't forget to read the fine print. ■



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DISCOVERIES

TITUS LEVI



DAVID WALDMAN

Style: "Mine." **Age:** 29.

Influences: Tangerine Dream, Faust, Material, Erik Satie, Brian Eno, Negativland, Can, Art Of Noise, Zoviet France.

Main Instruments: Roland Super JX & Jupiter-8, Korg M1 & DW-8000, Akai S950, Alesis HR-16 & MMT-8, Yamaha TG33, Micromoog, Minimoog.

Contact: 1603-G Carriage House Terrace, Silver Spring, MD 20904. (301) 680-8904.

THE MUSIC OF DAVID WALDMAN and Alians brings the work of Isaac Newton and Gottfried Leibniz to mind. Without knowing of each other's efforts, Newton and Leibniz worked synchronously toward the foundation of calculus. Likewise, in the calculus of solving problems through music, Waldman and Alians have independently come up with similar solutions.

Each has a penchant for enigma and theme. Each pulls from the feel of ambient music while charging the floating haze of the style with groove, melody, and activity. Small clipped melodies appear, disappear, reappear, change a bit, sulk in the background, charge up front. Electronic threads splice the curtain of synthetic texture. Treated text samples lend a feeling of distress, but the sequence of samples may just as easily provoke a smirk. Rhythms remain definite but continually shift, and their asymmetry seems to stretch time.

Their composing strategies, however, are different. Waldman spends much of his time programming and pushing his instruments in new directions. "Those of us on a tight budget must learn to play effectively with our old toys," he says, "but there's an infinite variety of possibilities in all your tools, including the most important one, your mind." Alians, on the other hand, uses his eponymous program to generate ideas, often using his own preset sounds. "It's become a monster," he admits. "It's over 10,000 lines of code, and even I don't know all of what's in it anymore. Now I'm using the internal sequencer in the T3 in pattern mode. For a free-form real-time sequence, I use Cakewalk. And my newest rage is programming

my drum machine."

This change in technology follows a change in musical direction. "I used to turn on the recorder and let it rip," Alians says. "Whatever came out, the gods meant it to be that way, and it stood. Assemblage was my pride and joy at that time. At this point, that's like ancient history. I'm moving out in many new directions, and my friends take me in still more directions. It takes about 14 hours for me to do three minutes of music now.

"I spend more time mapping out my sounds," he continues. "I'm more particular about it than I used to be. I incorporate more change into the music. I used to do sequences that would keep repeating or barely change. Now my sequences have more components, and big tempo changes will come up. I'm becoming more capable with

my equipment, so I need to move forward and build more complexity and variety into the music."

Both of this month's Discoveries have other areas of musical interest. Waldman's attraction to variety is a major issue for him. "My music is about the pent-up right-brain chummings and yearnings in a world in which the left is considered the correct hemisphere. It ranges from pulsing Eurodance to slice-of-life broadcast ambience interwoven with sweeping turning bits and a lot of tendrils. Worldwide headlines, brainfarts (i.e., dreams), and nature all find a way in. Synths have given me the ability to express myself in many ways. In a sense, they are the most human of instruments because of the control and precision they give me in clearly and completely rendering my ideas. It's like the flexibility of the brain: The same organ that sits in Mother Teresa's head sits in Ted Bundy's."

Waldman's other interests include collaborating with Steve Abramowitz on video soundtracks for the Maryland Park and Planning Commission, and accompanying the raps of Kathleen Kinsolving, which focus on human and animal rights, and the poetry of Ron Williams.

For Alians, getting out and playing in Chicago's underground club scene is a crucial exercise. "I used to play jazz trombone, but the scene changed in Chicago. It became more about playing a set song list, so I quit. But my friends Stevo Wolfson and Wayne Lekan dragged me out of the dark because they convinced me that I could play what I wanted live. I'm glad they did this. Now I'm like a little kid. For me, this is just the start of a whole new direction." ■



KARYN LANG

ALIANS

Age: 35. **Influences:** Brand X, Chopin,

Cocteau Twins, Depeche Mode, the Fixx, the Grateful Dead, Allan Holdsworth, Jethro Tull, King Crimson, Liszt, Pat Metheny, Bill Nelson, Rush, Steve Vai, Joe Satriani, XTC, Yes.

Main Instruments: Korg T3, Roland D-50 & GR-50, Compaq Portable 386 w/Alians software.

Contact: 2224 S. 61st Ave., Cicero, IL 60650. (708) 652-0435.

Titus Levi, founder of the California Outside Music Association, now spends his free time struggling through graduate economics classes at U.C. Irvine. If you'd like to appear in Discoveries, send a cassette of your best material, a biography (full name, age, style, influences, performance credits, future plans, and equipment), a publishable phone number and address at which readers may contact you, and a clear black-and-white photo of yourself with your keyboard setup. Photos should be labelled with your name and the photographer's name and address. All styles of music will be considered. Due to number of submissions, material cannot be returned, and applicants will not be contacted unless accepted. Send all correspondence to Titus Levi, 5135 Hanbury St., Long Beach, CA 90808. Titus also invites all Discoveries alumni to keep in touch with news about career advances, and would like to hear as well from more artists who use non-keyboard triggering devices or interactive computer software.



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I've noticed the word "oversampling" appearing on spec sheets for compact disc players, samplers, and hard-disk recording systems. I've heard many conflicting explanations of what this really means. Can you help clear this up?

Jeff Burdette
New York, NY

For an authoritative answer, we turned to Dave Rossum of E-mu Systems, who has been in the thick of sampling since the development of the first Emulator. According to Dave, "Oversampling is a much overused term, but in essence it has a very simple explanation. The basis of digital audio is the sampling (or Nyquist) theorem. This states that if you sample at twice the highest frequency present in the signal, no information is lost. In other words, if we define 'audio' as signals below 20kHz, and then create (or filter) all our audio signals so that they have no energy above 20kHz, then as long as we sample them at a rate of 40kHz or greater, we have completely captured the signal.

"Remember that this theorem does not consider the fact that the sampling is digital. So we haven't considered whether we are sampling at 8, 12, 16, 24 bits, or whatever. The bit resolution has a com-

pletely different kind of effect. The sampling theorem assumes we're sampling with plenty of bits.

"If we have energy almost up to 20kHz, and we sample at 40kHz, we are 'critically sampled.' In other words, we couldn't safely lower the sampling frequency without losing some information. On the other hand, if we sample at, say, 80kHz or 160kHz we would be 'oversampled' because



G R E G R U L E

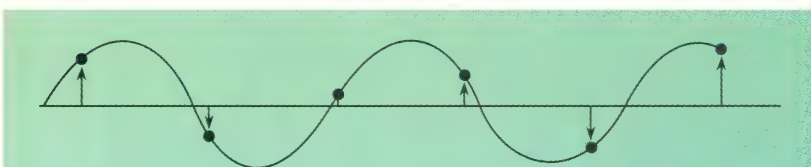


Fig. 1. A sine wave at a frequency near 20kHz is sampled at 44.1kHz. The vertical lines show the points where the samples are taken.



Fig. 2. The digital representation of the wave in Fig. 1. This is the data that would be stored in a sampler's memory, or on a CD.



Fig. 3. The oversampling process begins by introducing a number of samples with values of zero between each of the real samples. Here, we are doing 4x oversampling.

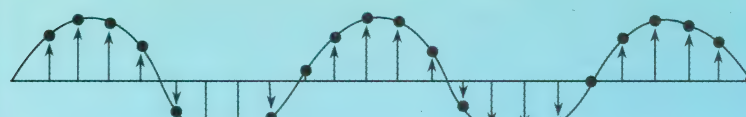


Fig. 4. Using a digital filter, we can reconstruct the original wave in Fig. 1 by oversampling. Note that the digital filter doesn't simply "connect the dots" between the real samples in Fig. 3. Instead, it executes a much more complex mathematical process using data from dozens or even hundreds of surrounding samples. This process allows the high-frequency content of the input wave to be recreated correctly.

we have sampled at a much higher frequency than necessary. This is the strict definition of 'oversampling' — in a sense it's the opposite of 'critical sampling.'

"We can also talk about how much we oversample. If critical sampling was 40kHz, and we sampled at 80kHz, we would be oversampled by a factor of two (2x oversampling), and so on.

"So why do we oversample? If we really did sample audio at exactly 40kHz, we would have no room to perform the tricks we have to do in practice to get it to work. Specifically, we have to filter any real signal to get rid of anything above 20kHz that might have crept in, and, since filters have a rolloff slope, we need some margin to go from flat (no attenuation) to dead (no signal). Remember, the theorem states that 'no information is lost,' but it doesn't say that any isn't added. In fact, we have to filter out the extra high-frequency 'images' that have been added by the sampling process. So when we go to reconstruct the signal, we need a margin band for the filter. Real-world sampling frequencies, being above 40kHz, have some margin; 44.1kHz has a very tight margin, 48kHz is much more comfortable.

"Of course, if we oversample, the margins can get very comfortable indeed — and this can be a big benefit. One huge use of oversampling is to get rid of the complex analog filters otherwise required for A/D and D/A conversion. Instead, we use digital filters. If I take the critically sampled 44.1kHz signal, and oversample it by just putting in more (zero) samples between each real sample (see Figure 3), I can then digitally filter it to produce a truly oversampled signal. The analog filter rolloff slope required to remove the images produced by sampling will be much gentler, requiring fewer components and less tight tolerance. We can do a similar trick to 'anti-alias' an incoming signal for A/D conversion.

"Very high oversampling ratios allow us to do other tricks, like 'sigma-delta' conversion. Because running a signal through a digital filter can produce more bits out than in, we can actually (through some clever signal processing — too complex to explain here) take a few bits (even only one) and produce 16 bits of data by use of the digital filters enabled by oversampling.

"There are numerous other uses for oversampling. In E-mu's G-chip inside the Proteus family, we 'oversample' by a factor of 4096. It turns out that this is a purely mathematical trick — the entire signal is never oversampled at once. But this simplifies the digital filters inside the chip. It illustrates the point that oversampling is something we do to make the electronic transformations cheaper and better. Ultimately we are limited by the critically sampled nature of the signal standards (44.1kHz or 48kHz, or 32kHz for 15kHz audio) and no amount of oversampling will improve these basic limits. It's just a tool to help us approach the true capabilities of these standards."

Special thanks to Digidesign's Dave Clementson for his assistance with this question.



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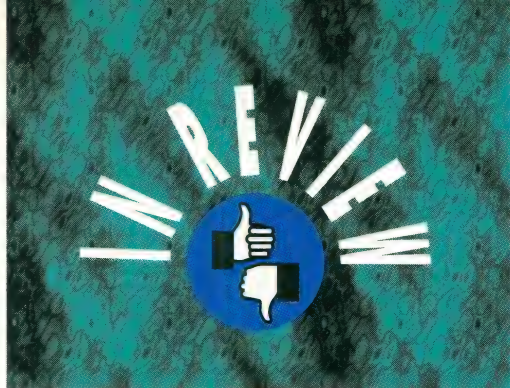
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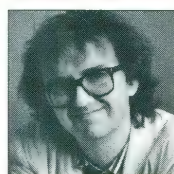
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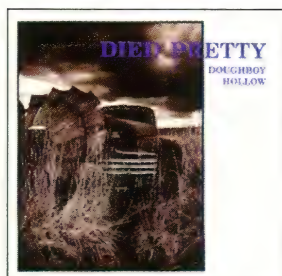
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ROBERT L. DOERSCHUK



RECORDINGS



Died Pretty, *Doughboy Hollow* (RCA).

Even budget-variety synths pack a wider range of sounds than the Hammond organ, but groups like Died Pretty prove that a few variations on the old tone-wheel growl can be even more expressive than layers of brass, strings, and assorted garnishes. By giving John Hoey plenty of room for chords, smears, and solos, this quintet roots its sound in vintage Spooky Toothian tradition. Yet they're expressive in today's terms too: Hoey's droning support work on "Battle of Stanmore" suggests a fashionably Celtic reference and, when tucked behind Steve Clark's bass on "The Love Song," even echoes Joy Division. The moral that less can be more is obvious on *Doughboy Hollow*. All it takes is one good axe and a lot of good taste.

Fizzè, Peeni Waali (Mensch Records, Rebgrasse 28, CH-4102 Binningen/BL, Switzerland).

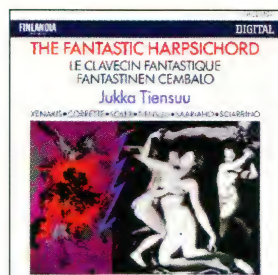
Peeni Waali is a feast of short but steamin' grooves. Backed by a

rotating lineup of African and Jamaican musicians, and a few players of indeterminate nationality, Fizzè concocts fascinating variations on Third World rhythms. His bubble beats bounce on synth, organ, and accordion behind a variety of lead instruments, most often the slippery trombone of someone named Rico. Tempos are medium, fireworks are few; what makes the album memorable is its persistently relaxed and natural feel. Longtime reggae and dub fans may not consider *Peeni Walli* revolutionary. But for rock-reared speed demons, these 15 uncluttered instrumental cuts, some recorded as far back as 1984, add up to a lesson in how to get maximum mileage from your music with minimal exertion.

Onaje Allan Gumbs, *Dare to Dream* (MCA).

Though there's nothing revolutionary or even particularly exciting here, enough tasty piano emerges from the glossy synth textures and generic drum patterns to remind us that Gumbs is a first-rate player when he wants to be. His solos build to climaxes that attract our attention without disrupting the seamless groove. Yet the intention seems to be to never quite engage the listener, to keep everything humming along in the background. It's music designed *not* to be fully listened to. One expects this in a world programmed for passivity by Muzak, but when executed by players of Gumbs's quality, this sort of stuff can be maddening. Clearly Gumbs can burn with an interactive rhythm section — the kind that responds

to inspired licks with hits that, in turn, spark the soloist to play something even hotter in response. Our advice to artists like Gumbs, Joe Sample, and George Benson is to give this fixation with prettiness a rest — and dare to dream again.



Jukka Tiensuu, *The Fantastic Harpsichord & The Exuberant Harpsichord* (Finlandia, dist. by Harmonia Mundi, 3364 S. Robertson Blvd., Los Angeles, CA 90034).

This pair of CDs will blow away the cobwebs that obscure the popular image of harpsichord music. The instrument's prickly texture brings out a mechanistic side to many of the composers represented here; the furious climaxes to Usko Meriläinen's *Zimbal* (on *Exuberant*), the needily opening moments of Iannis Xenakis' *Khoai* (from *Fantastic*), and the precise extended trills on Kaija Saariaho's harpsichord-and-tape piece *Jardin secret II* (from *Fantastic*) suggest timbral capabilities unsuspected by Baroque contrapuntalists.

Spacious textures also abound; Anneli Arho's *Minos* (*Exuberant*) sustains tension in sparse passages through carefully placed ornamentation and the deliberate tuning of one *E* in the upper manual to a perfect third above Middle C. Tiensuu delights in alternative temperaments; on both albums, perfect, microtonal, and other systems paint shadings that would be harder to discern in the piano's more complex sound. On each cut, Tiensuu overcomes awesome technical challenges. The most difficult works, notably the Xenakis and *De a de do* by Salvatore Sciarrino, both from *Fantastic*, pose problems of articulation that only computer jockeys and Conlon Nancarrow seem willing to tackle, but Tiensuu handles impossible trills, sweeps, repetitions, instantaneous registration changes, and simultaneous two-manual, one-hand parts with an electrifying insouciance. Let's hope

that these CDs can find an audience as broad as the vistas of his virtuosity.



Univers Zero, *Heresie* (Cuneiform, Box 6517, Wheaton, MD 20906-0517).

Chamber music for the Apocalypse. This talented quintet finds the right balance between post-Schoenberg and postmodernism. In this album's three long and complex pieces, Roger Trigaux plays the key textural role on piano, organ, and Harmonium. His dense parts solidify the ensemble textures, or stir them to a turgid froth with swirling passagework. Patrick Hanappier's *sul ponticello* slides on viola and violin further emphasize the group's trademark gloomy sound. Univers Zero are not to be danced to, or entertained by. It is better to appreciate them dispassionately. Their compositional resources — especially evident on Trigaux's collaboration with percussionist Daniel Denis on the cheerily titled "Jack the Ripper" — and idiosyncratic ensemble work mark Univers Zero as a group of admirable, though dark, vision.

Guire Webb, *New Frontier* (Proxima, 322 S. Topanga Canyon Blvd., Topanga, CA 90290).

The main weakness of this instrumental album is, in a sense, its strength. On all nine selections, Webb plays piano with an amiable folksy feel. There are no fast runs, no daring risks, but neither are there any pratfalls or lapses into bad taste. With gentle accompaniment on some cuts, working solo on others, Webb more or less runs the same set of licks through a variety of settings and keys. Check the piano motif on the first two tracks, "Anika Rae" and "Will and a Way": The syncopations are nearly identical, and remain so throughout both performances. But rather than weary the listener, this sort of repetition has a pleasing effect, which Webb's

firm chording and lullabye rhythms enhance. The key to *New Frontier*, as well as to many far more ambitious projects, is the artist's awareness of his or her limits, and discovery of how to create within them.



Paul Schütze, *The Annihilating Angel: Or, the Surface of the World* (Extreme, Box 147, Preston 3072 Victoria, Australia).

Want to make an Expressionist film? Here's your soundtrack. These moody pieces are tailor-made for the kind of black-and-white flicks designed to depress arty onlookers at repertory cinemas. Schütze uses dark synth colors, animated at times with percussion or bits of conversation snatched from the spirit world, to conjure compelling moments in 11 short works. With no clear verse-chorus structure, his pieces flow gradually from mood to mood: In just three minutes, "The Falls" takes us on a journey through rolls of distant thunder, past an Indian marketplace complete with agitated tablas, and into a space in which hidden strings moan an ominous ostinato behind someone's unintelligible muttering. These loose structures would likely unravel in less expressive hands, but with Schütze doing the playing and programming, *The Annihilating Angel* is as disturbing as a journey into some familiar yet foreboding void, as evocative as our own inarticulated fears.



Various Artists, *Blue Ivory* (Blind Pig, Box 2344, San Francisco, CA 94126).

co, CA 94126).

Four blues piano players tell the truth on this compilation album. The slow cuts are straight-ahead, with familiar high-register licks scampering around a somnambulant beat. More interesting are the up-tempo pieces, in which each pianist is freer to come up with an original rhythmic twist. Roosevelt Sykes, on "Running the Boogie," achieves a flowing movement with traditional rolling octaves in the left hand. Another old boogie-woogie pattern, based on a straight-eighths ostinato played off the root of each chord, powers Henry Gray's right-hand variations on "Finger Snappin' Boogie." Former John Lee Hooker sideman Boogie Woogie Red follows a modified Latin approach with a sauntering, syncopated bass riff on "Red's Rhumba."

The most impressive work comes from the youngest of the bunch, one Mr. B. On "Thunder & Lightning Boogie," B lays down a propulsive ascending bass in open

fifths; the unusual voicing creates a tasty growl that unadorned octaves don't quite achieve. Trained pianists may be appalled by the lead-footed pedalling, reeling tempos, and fudged notes throughout *Blue Ivory*. But accuracy isn't the point. Feel is the name of the game in this style, and in these times of anal quantization and formulaic playing, this type of feel may be an endangered species. Enjoy it while — or if — you can.

Cecil Taylor, *Live in Vienna* (Leo, dist. by North Country Distributors, the Cadence Bldg., Redwood, NY 13679).

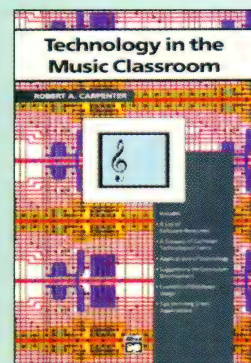
Taylor and drummer Thurman Barker open this concert album with an enigmatic poetry reading, in which the delicate drop of isolated words sets the stage for some turgid blowing. There are constant references to jazz forms within the din, in William Parker's snippets of walking bass and reed player Carlos Ward's bop-flavored lines. This game

of tag with tradition sets a context for Taylor, who obliterates the division between soloing and comping with superhuman jabs, spirals, and landslides up and down the keyboard. Even as the ensemble texture changes, he hammers away, most of the time avoiding the pedal, much as some Impressionist painters worked their magic with points while avoiding broad strokes. Despite the genius that powers his exertions, it is easy to be exhausted by Taylor — assuming, that is, that one listens to him incorrectly. In truth, there are two ways of dealing with Taylor. One is to take his CDs out of your machine and trade them in for something safe. The other is to force yourself to listen to something like *Live in Vienna* from start to finish — all 71 minutes of it. Perplexing as he may seem to those of us nurtured on hummable tunes and tidy backbeats, the power of his music is undeniable and, ultimately, seductive. Give it a try. Patience does have its rewards. ■

BOOKS

Robert A. Carpenter, *Technology in the Music Classroom* (Alfred Publishing Co., 16380 Roscoe Blvd., Ste. 200, Van Nuys, CA 91406).

For today's working keyboardist, much of this 70-page volume is old news. But music teachers, even those who have already junked their chalkboards and dummy keyboards in favor of computers and synths, will find useful tips here in how to effectively use electronic music technology in the classroom. Each chapter — topics include MIDI, drum machines, audio equipment, peripheral devices, and software — opens with a fairly basic rundown on how things work, and closes with a section on "classroom uses." In these sections lie the book's most valuable suggestions, many of which boil down to finding ways of involving students at the creative level from the first moments of instruction. Carpenter's last chapters, a rumination on curriculum design and advice on how to apply for grants, add a nice extra dimension to his earlier nuts-and-bolts passages. Despite a few bugs in the ointment, particularly in the appendix, where Sound Tools is listed as an IBM program, Sound Designer II is identified as an editor/librarian, and so on, *Technology in the Music Classroom* is a quick and clear-headed reference for teachers with imagination and no fear of new trends in their field.



Assembled by Robert L. Doerschuk. Overseas correspondents: Peter Cor, Lesley Sly, Ken Hunt, Mark Jenkins, Amir Khan, Wojciech Kubiak, Cato Kyvik, Peter Machajdik, Vladimir Pervukhin/Novosti Press, Charty Pralong, Andreas Schätzl, Daniel Sofer, Arnaldo de Souteiro, Richard Trythall.

CAREER UPDATE

The first **Emerson, Lake & Palmer** tour of the U.S. since 1977 begins on July 31. "Black Moon,"

the first single from their new album, is scheduled for release in June. . . . The worldwide **Genesis** tour begins in May. . . . **Howard Jones** wraps up his three-week U.S. club tour at the end of April.



ELLIS MARSALIS

SETTING THE STANDARDS ON *HEART OF GOLD*

If that old saw about the child being father to the man doesn't quite apply to Ellis Marsalis. For one thing, the soft-spoken and distinguished New Orleans-based pianist has helped launch more than one remarkable child into the world. And long before his kids blew their first choruses, he was known along the musical grapevine as one of the unsung giants of jazz.

Even so, the public at large might never have had a chance to hear him on a major label if it weren't for the fuss caused by his sons, especially trumpeter Wynton and saxophonist Branford. Then again, maybe the tasty elegance of his latest album fits the times so well that he would be winning over new audiences even if his brood had been born tone-deaf.

On *Heart of Gold*, his debut release for Columbia, Marsalis

Jones is doing old and new material in a stripped-down format of piano and percussion. . . . Japanese fans were treated to a series of intimate performances by **Herbie Hancock** at Tokyo's and Fukuoka's Blue Note clubs last February and March. Hancock led bassist **Dave Holland** and drummer **Al Foster** through acoustic sets at each gig. . . . The third **Gonzalo Rubalcaba** album comes out this summer. Titled *Images*, it features the Cuban piano dynamo live at the Mt. Fuji Jazz Festival, backed by bassist **John Patitucci** and drummer **Jack De Johnette**. . . . The next *Usual Suspects* project, involving ace L.A. studio musicians recording live with no overdubs, will be out soon, with **John Beasley** and **Bill**

Meyers handling keyboard parts. . . . Plans are being made for an American release of the new **Bill Champlin** album, available since late February in Japan. A hot commodity in Japan, and winner of last year's Tokyo Music Festival award as top composer/songwriter/singer of the keys on this upcoming CD. . . . You can't dance and whip up a nice soufflé at the same time, but that doesn't seem to bother **Pierre Franey**. The host of the weekly *Cooking in America* program begins kicking off his PBS show in April with a new theme song cooked up by that master of zydeco spice, **Stanley "Buckwheat" Dural**. . . . After extensive work with **Aretha Franklin**, **Kevin Toney**

plays a long list of familiar material, one piece by the record's producer and yet another gifted son, Delfeayo, and two compositions of his own. Rather than scatter fireworks across the solo sections of each cut, Marsalis concocts meditations on melody. A sense of intimacy warms his performance. In his hands, familiar tunes glow like the smile of an old friend on a rare visit. In a sense, by showing his mastery of jazz standards, the elder Marsalis fits right in with the spirit of Marcus Roberts, Benny Green, Harry Connick, Jr., and other roots-hungry young players.

"But if you really want to know the truth," confides Marsalis, "the first generation that stopped playing the standards was mine. When I started playing, the progressive musicians were those who tried to play like Bird [Charlie Parker] or get into the latest Miles [Davis] concepts. The bebop movement took us away from the standard tune as the main vehicle of performance. Eventually, we went back to the standards for the same reason that kids are going back today, except that we were a lot closer to those tunes. I mean, some of us can still remember Judy Garland singing 'Over the Rainbow.'"

A thoughtful historian of his art, Marsalis speculates that today's young musicians have no choice but to go backward in order to move forward. "It's like a fruit tree: A certain time has to go by before the tree can bear fruit. Once it does, then the germination process starts all over again from the fruit that falls from that tree. Consequently, we're looking at a generation of players who are now in a position to get even younger players to look further back than they did. Look at Wynton: He learned piles of stuff from Miles, but in order to go as far back as Jelly Roll [Morton], which he subsequently did, he had to go as far back as he could on his instrument."

is wrapping up a solo album — his first in ten years. . . . Though long resident in the U.S., **Elaine Elias** recently returned to Brazil to produce and play keyboard parts on guitarist **Toninho Horta**'s third Verve album. . . . **Don Grusin** has finished his next album at Hollywood's Andora Studios. . . . Chiaroscuro Records will shortly release the newest album by **Johnny Costa**, longtime piano wizard on *Mister Rogers' Neighborhood*. . . . **Henry Steinway** has donated a collection of documents to La Guardia Community College in Long Island City, New York. These papers document highlights in the history of his family's renowned piano firm, including minutes of share-

holder meetings as far back as 1876, financial data from 1856, and notes on the CBS purchase of the Steinway company in 1972. **Richard K. Lieberman**, director of La Guardia's archives, is writing a history of the Steinway family and business.

ON DISK

ON TOP IN BRAZIL. One of Brazil's most in-demand keyboard players and programmers, **Ary Sperling**, hit the pinnacle of the pop charts with a recording of his song "Herdeira da Noite" by vocal sensation **Itamara Koorax**. As on their previous collaborative hit,

"Iluminada," which was based on Chopin's *Ballade No. 1*, Sperling did the arrangement and played all the keyboard parts. Curiously, Sperling first won attention in Brazil as a singer and guitarist with the group Viva Voz in the late '70s. It wasn't until five years ago that

he began playing keys. Despite the tardy start, he has become a staple session synthesist with such pop heavyweights as **Joana**, **Rosana**, and **Xuxa**. Better late than never.

ROUND & ABOUT. Czechoslovakian jazz pianist **Emil Viklicky** joined forces with Amer-



Tunes such as "A Nightingale Sang in Berkeley Square," "Have You Met Miss Jones?," and "Spring Can Really Hang You Up the Most," all featured on *Heart of Gold*, serve a crucial function for the jazz musician — one that rock repertoire tends to neglect, according to Marsalis. "When you get a little older and you start to bridge beyond the esoteric material of your youth, you begin to appreciate all the melodies of the Kerns and the Gershwins," he explains. "The music that's being written by the current top composers, like Andrew Lloyd-Webber, is just not suitable for jazz improvisation. The form is different, and the melodies are strange."

Consequently, much of Marsalis's work as director of jazz studies at the University of New Orleans involves acquainting students with the discipline of learning — *really* learning — standard repertoire. "We go out and get the sheet music, and then we say, 'Okay, let's look at the way this man wrote this melody. Are there words to this song? Learn 'em! And let's see what he did harmonically, because if you want to change the harmony, you've got to make your changes from the point of knowledge. A lot of these songs were written to be sung in musicals, so they don't have a very strong harmonic arrangement in the piano score. That means that you really have to go into the song and do some research before coming up with your own ideas."

In his jazz piano and improvisation classes at UNO, Marsalis finds that his success at imparting the lessons of his art largely depends on how receptive the student is — or, perhaps, how capable the student is of being receptive. "A lot of it depends on how they've been trained," he says. "If they're too closed-minded, you can't teach

improvisation. It's a right-brain skill. If they're conditioned too much by the left brain, it's tough. I don't have no magic potion. I can't pass my hand over their heads. The voodoo don't work like that."

But with Wynton juggling classical concerto performances and combo gigs, with Branford wailing in the new *Tonight Show* band, and with 14-year-old Jason laying down some serious brushwork on "This Can't Be Love," from *Heart of Gold*, Marsalis must have some kind of magic touch as a teacher. Right?

The *pater familias* shrugs. "I probably did something right, but I really don't know what it is. You have to expose your kids to music. They have to go to concerts and hear records. They're not gonna pluck music out of the sky. If you buy a piano and put it in a corner, they might grow up thinking it's just a piece of furniture. But other than just having music as a part of my life, I didn't have any formula. I didn't even know who Doctor Spock was until he started getting on TV."

—Robert L. Doerschuk



Talent and a snappy fashion sense are the ties that bind the Marsalis clan (L to R): saxophonist Branford, Ellis, trumpeter Wynton.



ican trumpeter **Benny Bailey** on *While My Lady Sleeps*, recorded at Oslo's Rainbow Studio and released on Norway's Gemini label. . . . **Wladyslaw Komendarek** composed the score to a recent hour-long Polish television production based on his own published satire of contemporary Polish life. Titled

Dancing on the Rope, it features a combination of electronic and folk instruments, as well as Komendarek's acting debut; the veteran synthesist plays the role of a former Communist bureaucrat trying to make the transition to the new capitalist order.

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But, hey, you piano players have it easy: Once you've pushed a key down, you're done with that note; there's nothing more to do until it's time to move on to the next one. How would you feel if the position of your hand on each key affected the sounds you were playing in five different ways, for as long as you touched the key? Time for some *real* practicing, eh?

If you're up to do the challenge, instrument designer Robert Moog and composer John Eaton have a new instrument for you — the Multiple-Touch-Sensitive Keyboard.

Eaton: "This instrument is absolutely brand new, but it goes back a long way. Bob and I have been talking about it for 20 years."

Moog: "We knew that in order to advance the state of the art in

electronic musical instruments, we would have to concentrate not on the sound-producing part of the technology, but on the part of the technology that goes between the performer and the control of the sound."

Unveiled on January 31st during a press conference at the University of Chicago (where Eaton recently joined the faculty as a professor of music), the keyboard is intended to give composers and performers new handles on the shaping of tone.

Eaton: "Much more than in much of the electronic music you have heard, you will hear what you feel to be human nuance — the shaping, the sculpting of the tone by the performer in real time."

Moog: "We have a box here with 49 movable levers. Each lever has three different sensor systems on it, and one of those sensor systems can produce three different outputs (the other two produce one output each), for a total of five different things you can do with your finger. At this point we don't know if that's going to be 100% useful to musicians; whether having that degree of sensitivity is more than you can handle, more than your brain can process."

The total instrument consists of three parts: (1) a four-octave, 49-note keyboard; (2) an IBM-AT clone that reads the keyboard, organizes the information coming from it, and applies it according to the composer/performer's wishes to (3) one or more MIDI sound modules, chosen by the composer/performer. For each key, the instrument recognizes the following:

- finger position front to back
- finger position side to side
- amount of finger touching the key surface
- how far down the key is depressed
- how much pressure is exerted after key is fully depressed (polyphonic aftertouch)

A series of assembly language programs scans the keyboard at the rate of 2 million operations per second. This information is assigned for musical control via a higher level program (done in the programming language C). Any parameter that is controllable via MIDI is available, and any MIDI sound module can be connected to the computer's output for control from the keyboard.

Moog: "It's a frightening thing for a musician to approach this de-



John Eaton (L) and Robert Moog with the first Multiple-Touch-Sensitive Keyboard. Moog: "We envisioned a keyboard on which each key had the sort of sensitivity that you have on a violin." Eaton: "Bob and I are interested in the humanization of electronic music, in making instruments that are responsive to human nuance."

INDUSTRIAL

RUMBLINGS

ROLAND SPONSORS SUMMER SEMINARS. Roland's ISM Alliance, a user network open to

music educators participating in the company's Piano-ISM program, will sponsor four clinics for members this summer. Titled "Maximizing Music Technologies: Individual and Group Options for Music Study," these three-day events will include lectures, performances, daily hands-on labs,

and study products; some of the activities will be applicable to college credit. The seminars will take

place in Princeton, NJ, Minneapolis, Dallas, and a West Coast city yet to be announced at press time.

gree of control — it's like trying to ride half a dozen wild horses at the same time. It will take a great deal of discipline, and it will take a great deal of practice, and of course it will take a substantial number of musical ideas to make it all worthwhile."

Eaton: "I think electronic music has stayed too much in laboratories. It's very invigorating when it gets out and gets used by as many people as possible in as many different ways as possible."

Although Moog has been working on the design of the instrument for 20 years (based partially on ideas suggested by Eaton), early prototypes were hampered by technologies that weren't flexible enough to handle musical needs: Computers were too slow or too expensive, sensor technology wasn't miniaturized enough, and interfacing with sound-producing circuits was difficult. When computers like the IBM-AT and the Apple Macintosh came out in the mid-'80s, one problem was solved. The advent of MIDI solved another problem. And the continual shrinking of technology solved yet another. With these new tools (and with considerable help from software engineer Paul De Rocco), Moog was able to complete the design and construction of the first keyboard in time for the January 31st unveiling, and two more keyboards were delivered in mid-March.

Of course, dealing with problems like this is nothing new for either Moog or Eaton. Moog has been designing and building ground-breaking electronic instruments for 30 years, and Eaton has been involved with electronic composition intended for live performance for just as long. Collaboration is common to both as well. Eaton's first long-term collaboration with a designer, Paul Ketoff, led to the creation of the Synket in the mid-'60s; and Moog's first synthesizer designs were developed partially in response to suggestions from composer Herb Deutsch. Eaton is a recent recipient of a MacArthur Foundation "genius" grant (\$330,000 over five years), and he has used some of the grant money to bring work on the Multiple-Touch-Sensitive Keyboard to fruition.

Eaton: "We started talking about this instrument 20 years ago. In



Moog and Eaton working together to design an instrument patch. Moog: "The main display is called a patch. Together with the sound-producing box and the keyboard, it tells how the instrument as a whole will respond to what you do on the keyboard. In a typical piece of music that John and I anticipate, that will be changed frequently throughout the piece. Designing the instrument becomes a part of the composition of the piece of music." **Eaton:** "I think it's terribly important that this new instrument gets into the hands of people who are making all kinds of music, and becomes part of the general currency of music-making."

the meantime, there have been so many advances in technology and miniaturization that the instrument design has changed again and again. But it's finally here and it's finally done."

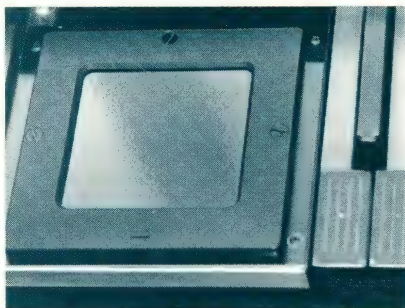
Moog: "I'm sure looking forward to hearing what somebody does who has the insight, the musical vision, and the drive to do the hard work to find out what can be done with an instrument like this."

The first concert performance using the new instrument is scheduled for May 29 in the University of Chicago's Mandel Hall. Eaton plans to use all three keyboards, connected to three synthesizers that generate sound according to three different principles. For more information on the concert, contact the University at (312) 702-8068.

For his part, Moog has no plans to mass-market the instrument. "At my point in life, I'm interested in staying at the edge of the musical instrument business," he says. "I don't want to start something big over again. I'm getting too old for that stuff." For more information on the

Multiple-Touch-Sensitive Keyboard, write to Big Briar, Rt. 3, Box 115A1, Leicester, NC 28748, or call (704) 683-9085.

—Tom Darter



In place of the now-standard pitch-bend and modulation wheels, Moog's new keyboard features an X/Y touch plate for sculpting global changes in the sound. As with the keys, finger area is also scanned.

Details are available from Roland U.S., 7200 Dominion Circle, Los Angeles, CA 90040; call (213) 685-5141, Ex. 303.

BULLETIN BOARD

MMA ELECTS NEW OFFICERS.

Here are the results of the MIDI Manufacturers Association officer elections, held last February. The MMA Executive Board now lists **Tom White** of Roland as chairman, **David Oren** of Fostex as treasurer, **Lachlan Westfall** of the IMA as secretary, with Passport's **David Kusek** and **Paul Lehrman** of BiCoastal MIDI Consultants as members of the board. The new MMA Technical Board consists of **Paul Young**

of Tascam, **Hal Chamberlin** of Young Chang R&D, **Scott Peer** of Peavey, and **Richard Bugg** of Oberheim/Gibson Labs, with **Chris Meyer** of Roland R&D as chairman.

TIME FOR QUICKTIME. Macworld Communications is sponsoring a two-day QuickTime conference at San Francisco's Fairmont Hotel on May 28 and 29. The program includes sessions on Movie Toolbox and Video, Authoring Tools, Analog Movie Editors, Video Capture, and Making QuickTime Movies for CD. Representatives of Digidesign, Adobe, DiVa, Spectral Innovations, and other manufacturers will give presentations. Selected

QuickTime films will also be shown. The registration fee of \$295 can be paid either by faxing your Visa or Mastercard number to Macworld at (415) 442-0766, or by mailing checks payable to Macworld Communications to Sandy Butler, Events Manager, Macworld Communications, 501 Second St., San Francisco, CA 94107. Further details can be obtained by calling

fessers from around the world will go one-on-one in marathon ragtime, honky-tonk, and sing-along sessions, while collectors inspect and trade sheet music, piano rolls, records, and other arcana. There's even a barbershop singing room, but don't worry — most of the action centers on the piano. Various package rates are available for those who wish to participate or attend.



(415) 267-1745.
IT'S OLD TIMEY TIME. The 18th annual world championship of old-time piano playing takes place May 22-25 at the Holiday Inn Conference Hotel in Decatur, Illinois. Nimble-fingered per-

RICK WAKEMAN MARKED FOR DEATH:

FIVE CDS THAT WILL NEVER BE STAGED AS ARTHURIAN FANTASIES ON ICE WITH ORCHESTRAL ACCOMPANIMENT.

Wrapped in a silver mantle on loan from Gandalf, Rick Wakeman churns out frothy, turgid lounge Liszt while a tony narrator offers dramatic interpretations of a Jules Verne novel. Horrifyingly, there are an intractable few who find this image . . . amusing. To these miscreants, nothing is sacred, not even the bongwater surrealism of Roger Dean, whose giant celery stalks and phallic mushroom caps have inspired heady speculation in the E-Z Wider set.

We may console ourselves with the knowledge that these infidels will never pierce the cloud of unknowing that shrouds the true meaning of those trenchant lines, "In and around the lake/Mountains come out of the sky and

they stand there." To them, this column — based on a lengthy footnote from Parmesan Yogananda's *Autobiography of a Yoda* — is scornfully dedicated.

Coil, *Love's Secret Domain*

(Wax Trax, 1659 N. Damen Avenue, Chicago, IL 60647). Coil — whose core is former Throbbing Gristle member Peter Christopherson (computer, sampler), John

Balance (lyrics, Chapman Stick), and Stephen Thrower (brass, drums) — makes sado-mechanical dance music that oozes honeyed evil. "The Snow" marries eerie, ectoplasmic vocal harmonies to the squelching bass synth, sonar pings, and

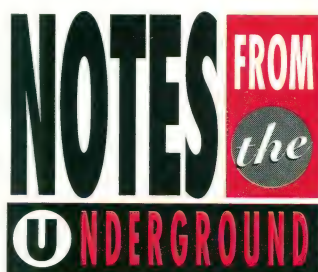
claustrophobic airlessness of techno-style house music. At intervals, panicked gulps and gasps intrude, hinting that somewhere, down where the walls are slick with slime,



something truly unpleasant is happening. Not all is H.P. Lovecraft, however: "Lorca Not Orca" threads gargled, heavily-processed vocals through flamenco guitar, all rolled arpeggios and snapped accents; "Where Even the Darkness" is a stately

processional in which the locust drone of a didgeridoo is borne along by tinny drum machine. Nonetheless, *Love's Secret Domain* is a clammy, sepulchral place to visit, even for an hour. This is the music that should have been playing in David Cronenberg's *Naked Lunch*, as the Moroccan witch sliced the giant centipede into dark, dripping fillets.

1. Holger Hiller, *As Is* (Mute, dist. by Elektra). "There is a world of music waiting to be used, everything for grabs," declares the German recycler, in the press release for this ferociously original, brilliantly eclectic release. And grab he does. The jittery, judgering groove of "Abacus" is hyphenated by staticky squeaks and flecks of fuzz. Every few bars, a female gabbling breaks loose,



Darth Vader geared up for harvest? No, it's Bruno Verdi, a choreographer and dancer, who won first prize at the second International Exhibition of Creative Technologies, which took place late last year in Paris. The jury, which included representatives from IBM and Disney, chose Verdi ahead of 300 candidates from 17 countries because of his yatagan — the mean-looking scythe-like thing shown here. Its name derives from a medieval Turkish saber, but its technology is strictly digital. Verdi's yatagan is in fact a motion- and light-sensitive electronic transmitter, capable of triggering ascending and descending passages when waved up or down, or awful cacaphony when jabbed into whoever has the guts to appear with Verdi onstage. For Verdi, a Canadian graduate of the University of Quebec and now head of his own dance company in Switzerland, dance-oriented electronics is nothing new: His "digital woods," a tree-like object designed to produce music when touched, has already been featured in one of his productions.



BEATRICE DEVENES

recalling the possessed chorus of Krzysztof Penderecki's *The Devils of Loudon*. "Sing Songs" loops what sounds like a hunk of Laurie Anderson's strummed, harmonized violin — Trivial Pursuit for postmodernists — and seamlessly weds it to the call-and-response vocals of African tribesmen. Incredibly, Hiller manages to arrange all of this cultural bric-a-brac into jukebox concrete that is as infectiously fun as it is endlessly inventive.

2. Nocturnal Emissions, Cathedral (EEE, dist. by DOVentertainment, 2 Bloor Street W., Suite 100-159, Toronto, Ontario, Canada M4W 3E2). Nigel Ayers, the founder of this British trio, lives in New-castle, near Stonehenge, which may explain the fog-haunted, Cimmerian atmosphere of Nocturnal Emissions' industrial new age. They are curiously restful, these long, droning instrumentals, and develop gradually, like moss growing on the dark side of a dolmen. Gravelly samples — played, according to one article, on Casio SK-5s — add what



2.

Pierre Schaeffer called "grain": a rough-edged quality that makes music sound gritty or abraded. The ghost of Kitaro is effectively banished.

3. The Hafler Trio, Kill the King (Staalplaat, dist. by Silent, 540 Alabama St., Ste. 315, San Francisco, CA 94110). Andrew McKenzie's longstanding interest in altered states of consciousness and the physics of sound combine on *Kill the King*, in which nothing happens, but beautifully. The blurred, 73-minute piece that takes up the entirety of this CD is the final resting place of all lost sounds: The whoosh of passing cars, the silvery whine of drills, the ting-a-ling of distant bells are washed away on a wave of half-heard murmurs. *Kill* is the aural equivalent of Robert Rauschenberg's white-

3.



on-white paintings, whose "pictures" are created by flitting reflections, changing light, and the shadows of museum-goers.

Francis Dhomont, Mouvements-Metaphores (Empreintes Digitales, dist. by Diffusion I Media, 4487, rue Adam, Montreal, Quebec, Canada H1V 1T9). Dhomont, 65, is a musique concrete composer whose influence on the Canadian electro-acoustic community is both deeply felt and all-pervasive. This two-CD set, accompanied by a handsome booklet, is impeccably recorded: Each piece of the real world — reverberant plish-plashings, children's voices, a ball rolling with hyperreal presence from one stereo channel to the other — sounds as if it were precision-lathed and polished to a high luster. Dhomont calls his work "acousmatic" — a French coinage, meaning "sound that is seemingly without origin." It is, he says, "shot and developed in the studio [and] projected in halls, like cinema." These are movies whose plots change with every listening.

— Mark Dery

To register, call (217) 422-8800 immediately; higher registration package rates kick in after May 1.

SING A SAUSAGE SONG. Sorry we missed the deadline on this, but we couldn't resist telling you about a contest that recently took place in England. Sponsored by the British Sausage Bureau, it invited composers across the U.K. to concoct a song to champion the comestible qualities of the British sausage by March 2. We

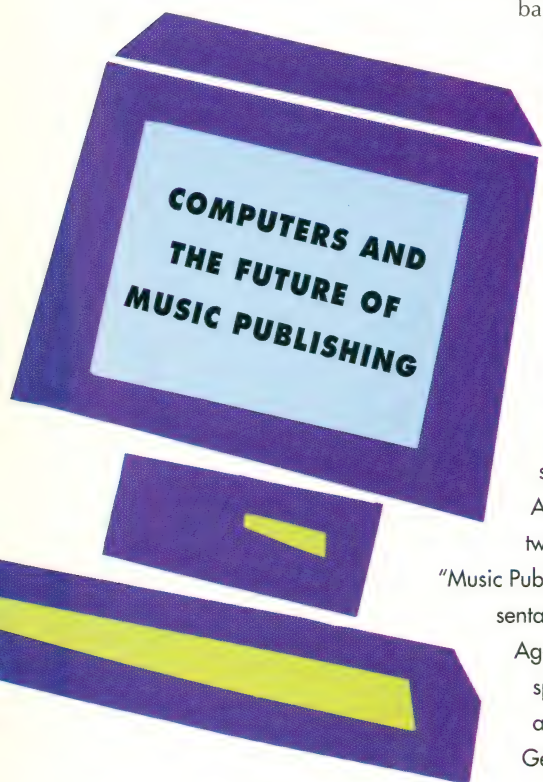
don't know who the winner was, but we believe that *anyone* who could come up with a rhyme for "sausage" deserves the first prize offered by the Bureau: a recording session, an unspecified keyboard instrument, and a year's supply of sausages.

LOUNGE COUNTDOWN. The second annual top ten list of most requested songs in piano bars has been compiled by Jimmy Rudolph.



based on 1,638 written requests submitted by customers in 1991. In reverse order, the tunes most likely to fill your tip jar last year were: 10. "Moon River," 9. "Send in the Clowns," 8. "Misty," 7. "Somewhere My Love," 6. "Unforgettable," 5.

"New York, New York," 4. "The Wind Beneath My Wings," 3. "Medley from *Phantom of the Opera*," 2. "As Time Goes By," and 1. "Memory" (from *Cats*). ■



On the weekend of January 18th, an international cadre of computer music dignitaries convened at Stanford University's Center for Computer Research in Music and Acoustics (CCRMA) for a two-day symposium on "Music Publishing and Music Representation in the Technological Age." Conceived and partly sponsored by composer and entrepreneur Gordon Getty, the activities were organized into four sessions

and an evening concert dealing with various aspects of encoding and representing music for computer interactive performance, computer typography and databases, and publishing, along with other diverse computer applications such as automatic music recognition, the publication of computer music, new library catalog formats, and publication as an interactive medium.

A highlight of the conference was Morton Subotnick's preview of the CD-ROM of his composition *All My Hummingbirds Have Alibis*, for flute, cello, and electronics (two players — MIDI mallets and MIDI keyboards). The CD-ROM is due this fall from Voyager, a company that has already released interactive study versions of such pieces as Beethoven's *Ninth Symphony* and Stravinsky's *The Rite of Spring*. As usual in Voyager's CD Companion series, you can view the score as you listen. You can also print out the score. A separate section on the CD-ROM will be set up to

play the electronics parts, and some parts of the score will also be available as MIDI files. At any point, you can stop the performance to access (randomly) one of three talks by Subotnick discussing that section of the piece. Or you can interrupt your viewing of photographs of the ballet version to call up a talk by the choreographer, John Alleyne. There will also be new elements, created especially for the CD-ROM version. Subotnick feels that, in five to ten years, the CD-ROM may well become the primary medium for the publication of music, "in the richest form we've ever seen." For more information, contact The Voyager Company at 1351 Pacific Coast Highway, Santa Monica, CA 90401, or call (310) 451-1383.

Nicholas Carter gave a talk on the optically-based music score reading system being developed at the University of Surrey in England. They are currently preparing a new version of the score to William Walton's *Facade*, which apparently now exists only in a small and somewhat incomplete study-score version: The cello part in *Facade* is extremely difficult, and Walton wrote an easier (*ossia*) cello part that is not included in the study score. At Surrey, they are scanning in the old score, adding the *ossia* cello part, and preparing this new, complete version for publication. There is a certain amount of correction work involved, but the scanning software is very accurate in its present form.

A Saturday evening concert, titled *New Musical Instruments*, featured works by Cris Chafe, Jean-Claude Risset, Arnold Schönberg, Leland Smith, Gordon Getty, and Morton Subotnick, performed with the assistance of Don Buchla's *Lightning*, Max Mathews' *Radio Drum*, the Yamaha Disklavier, Miller Puckette's [Opcode] *Max* software, and Yamaha and NeXT computers. The proceedings of the symposium will be available from CCRMA [Stanford University, Stanford, CA 94305] later in the spring. —Allen Strange

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rick richards

A . K . A . S I M I T A R

"Aliens Among Us"

It wasn't easy, but somehow we managed to whittle hundreds of entries down to one winner, five finalists, and twelve honorable mentions. *Keyboard* would like to acknowledge these musicians for their excellent work. Keep an eye on this group, folks; we're sure they'll be back in the thick of it next time around. Congratulations!

FINALISTS

MARTIN AUNE

Oslo, Norway ("Troll")

KARY BADDOUR

Munford, TN ("Divergence")

CHARLES CARPENTER

Granby, CT ("Dance of the Boneheads")

PETER GLEESON

Thunder Bay, Ontario ("Metal Meister")

BOB RAMSEY

Louisville, KY ("Bees at 90 Feet")

OKAY, OKAY, WE ADMIT IT. WE'VE BEEN BAD. IT took us an extra month to pick this year's Soundpage Contest winner, and boy are we sorry. Believe it or not, all five boxes of contest cassettes fell prey to the infamous Illinois Zombie Bandit last month. Luckily for us, our custodian Arturo Gomez spotted ol' Zomb a week later at the San Jose flea market, of all places, trying to dump the tapes for a buck each. According to Art, "It was the bulging eyes, pock-marked face, deadpan expression, and monotone

The Richards family portrait: On his lap, a Korg Poly 800 Mk II. Directly to his left, a Korg M1 EX beneath an Ensoniq EPS. The mouse and Amdek monitor are connected to a Roland S-550 (not pictured). To the right, a Yamaha MR1242 mixer and three Alesis Quadraverbs in the rack.

BY GREG RULE • PHOTOGRAPH: RICHARD MORGENSTEIN

KEYBOARD.

MAGAZINE

20085 STEVENS CREEK, CUPERTINO, CA 95014

"ALIENS AMONG US"

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MAY 1992 857

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**BY RICK RICHARDS
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KEYBOARD READER SOUNDPAGE CONTEST

rick richards

voice that gave the sucker away."

Truth be known, picking a winner from nearly 400 tapes proved to be no simple proposition. It took about 20 hours of listening time, a jumbo bottle of extra-strength Excedrin, five platters of Mrs. Milano's cookies, six pots of coffee, before (whew!) we finally had our winner. And you thought this magazine stuff was easy.

This year's crop of talent ran the gamut from sensational to sick. Some made us laugh, some made us cry, some made us cheer, and, yes, some almost made us hurl. Tapes were sent in from all over the planet, including North and South America, England, France, Israel, Yugoslavia, Slovenia, Germany, Norway, and Denmark.

There were plenty of surprises in the

batch. Most notable was the dismal showing of the B3 contingent. There was hardly a tone wheel or Leslie in the lot. Organ players, hello, what happened? And acoustic pianists, where were you? Luckily we had a couple of ivory ticklers come through — Kary Baddour made it to the finals, for one — but overall, the organ and piano pieces were few and far between.

The drum programmers delivered some excitement this year. We heard some burning funk and hip-hop patterns that had us up on our feet busting a move. A couple of tapes featured tracks that could only be described as "drums and cymbals tumbling down long wooden staircases." What's more, they actually made musical sense! We also heard some very interesting sub-

missions in the soundtrack and sound-effects genres.

What style of music dominated this year's contest? Not rock, funk, or technopop, but what Tom Darter called "mall jazz" — happy, glossy, imitation Spyro Gyra. Much of it was extremely well done, mind you. In fact, some pieces were recorded so cleanly that you could eat off of them. The problem was that they all started to sound the same after a while. If we hear one more D-50 breathy flute, DX7 electric piano, and Oberheim analog brass solo on the same tune, well . . . you get the picture.

We listened to every cassette that came our way, except for one: the tape from Miami's Landin Battistini (which arrived broken in half, courtesy of the U.S. Postal Service). Sorry, Landin, but by the time we noticed the busted case, it was too late to request a new one from you. Next year, okay?

After listening to each entry once, we singled out 18 tapes and proceeded to the semi-final round. Those 18 were then pared down to six, which eventually led to a wild and woolly shoot-out between Martin Aune of Oslo, Norway, and Rick Richards of Sunnysvale, California. The jury went back and forth, deliberating for two days, before eventually giving the nod to Richards. It couldn't have been a closer call. This being the case, we feel compelled to give Martin a double thumbs-up plug from the staff of *Keyboard*. His 3-1/2 minute composition, "Troll," took us on a wild roller coaster ride through changing time signatures, orchestral flurries, and synthesizer runs. It was an exceptional performance with nary a clam to be found. If Martin hasn't already caught the eye of a major label, it's only a matter of time before he does. (You read it here first, folks.)

Which leads us to our 1992 winner, Rick Richards (a.k.a. Sim Itar). This competition marks Rick's third attempt to capture the coveted vinyl disc; he was a finalist in the 1990 contest. This year, though, his rock-and-roll burner, "Aliens Among Us," went straight to the top. The tune kicks off with a hard rock punch, slides into a rap beat, and then breaks into a Satriani-esque guitar motif. Two blistering solos and several mood swings later, Rick screeches to a conclusion. The tune riveted our interest by offering a mixture of themes and dynamics. What ultimately sent us over the edge, though, was his convincing simulation of the electric guitar.

"Guitar players really hate me," laughs the 25-year old keyboardist about his faux axe-wielding. "It's taken me about seven years of trial and error to refine it." It all start-

Continued on page 38

HONORABLE MENTION

GLENN ADAMS

West Covina, CA ("Meltdown Monday")

VINCENT MAI

North Vancouver, BC ("Night Ride")

VICKI BARBERA

Zionsville, IN ("MC2")

PATRICK McDUGALL

Portland, OR ("Not So Fast")

EARNEST BOVINE

Studio City, CA ("Washington Pest Polka")

DAVID MARK MILLER

Anchorage, AK ("Just You and I")

JORGE CARRION

Chula Vista, CA ("Pan Dulce")

PETER SASMORE

San Carlos, CA ("Lost Luggage")

MICHAEL FORD

Malvern, PA ("Don't Look Back")

HARRY SKLAR

Philadelphia, PA ("Scenic Route")

DANILO MADONIA

Genova, Italy ("Latino")

JOI VEER

Weehawken, NJ ("All of Me")

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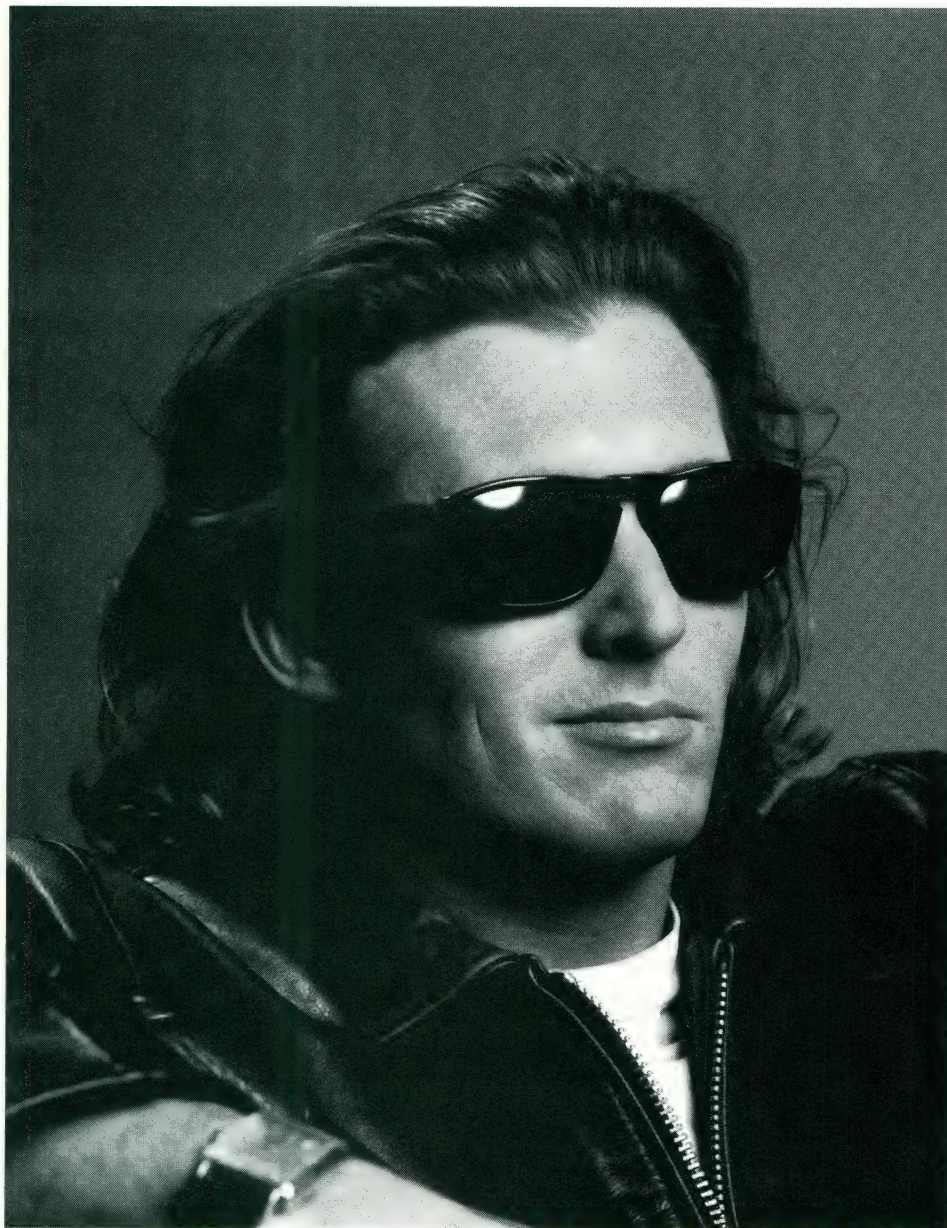
It is a true decendant of its legendary predecessor, the PPG Wave synthesizer, combining the best analogue filters with the most unique digital sound-generation. The MicroWave is a classic.



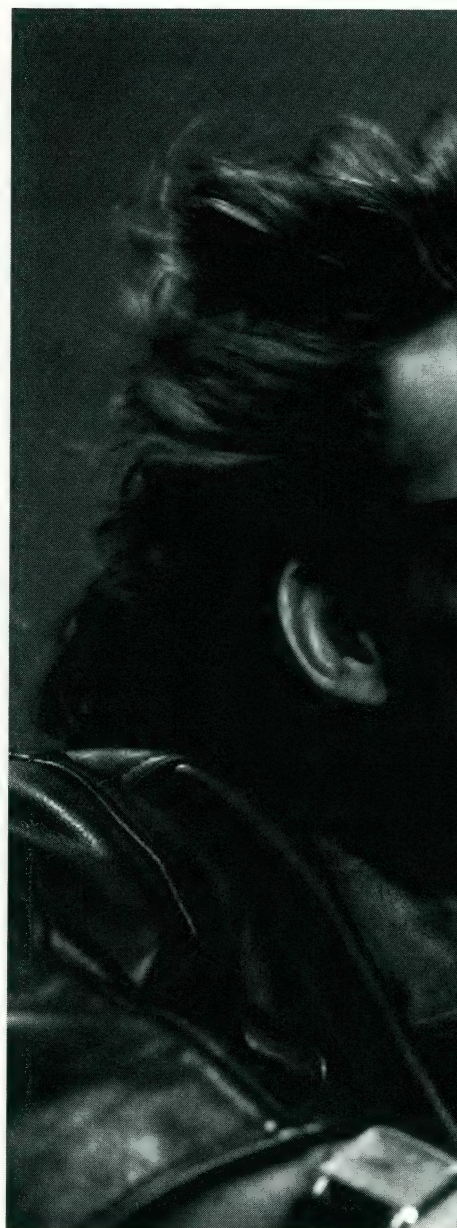
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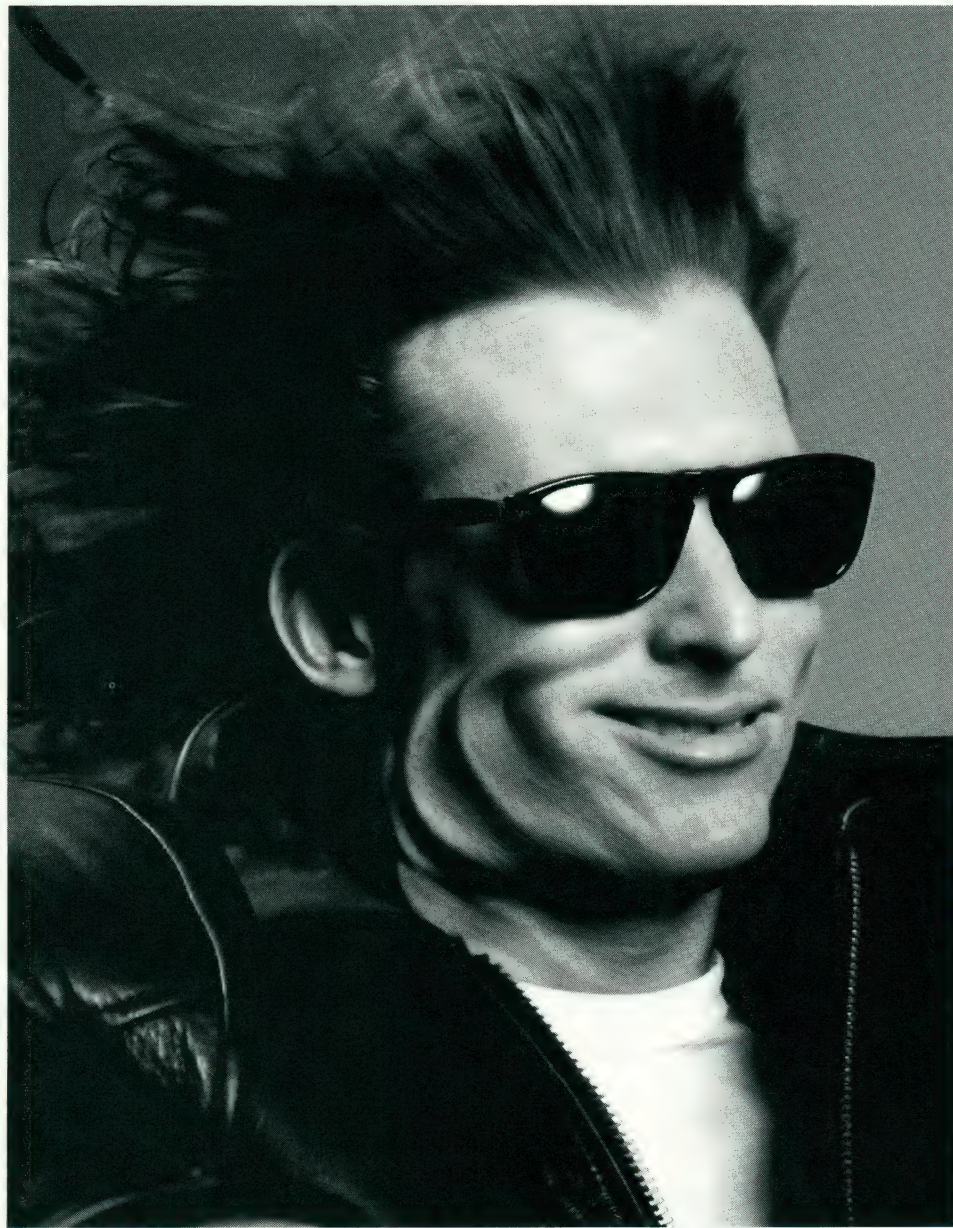
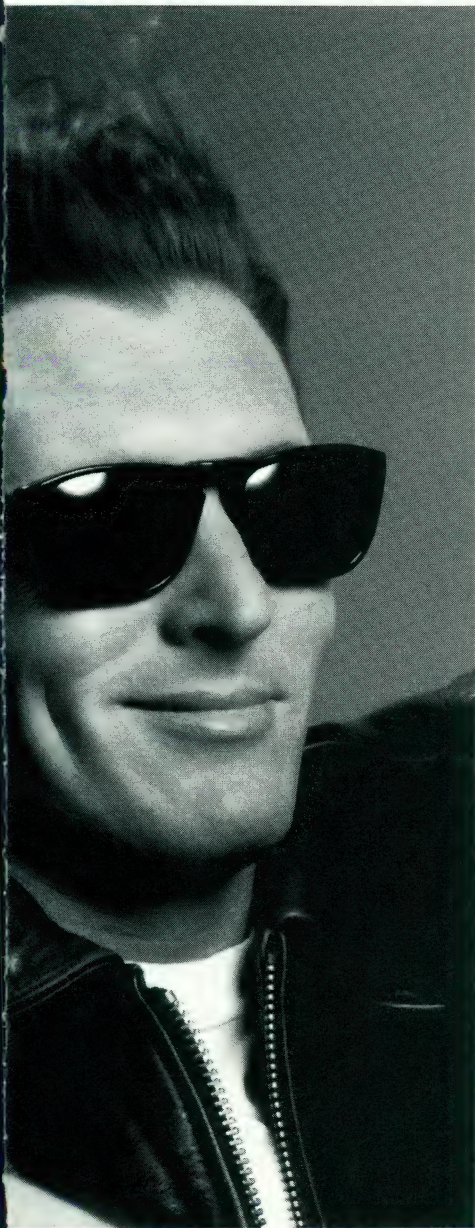


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KEYBOARD READER SOUNDPAGE CONTEST

rick richards

Continued from page 34

ed when his brother brought home a Scholz Rockman one day. "I noticed an input on the Rockman labeled 'keyboard' and immediately the light went on in my head. There just happened to be this factory setting for a heavy metallic crunch sound. So I plugged in the Korg Poly 800 Mk II, hit a note, and my brother and I just looked at each other. We couldn't believe it. The initial hit of the note sounded exactly like the chunk of a guitar." From there, Rick started to experiment with synth patches specifically designed for driving the Rockman. He found that one oscillator could be used to simulate the string tone, and another could be used for feedback.

"It really took off when I got my Ensoniq EPS sampler," he explains. "That's when I started sampling the real thing," most recently a Paul Reed Smith. "I'll multisample clean plucks and muted notes from the guitar and then I'll sample a harmonic feedback sound from the Korg M1." He then sets up velocity switching between the sounds. "Soft hits give me mutes and feedback, harder hits give me plucks with feedback, and the hardest hits give me plucks and chirps." He then routes it through a Rockman X100, an Alesis MicroGate and QuadraVerb and, well, you can hear the results on the soundpage.

Just for the record, Rick started playing piano 11 years ago. With the exception of a few pointers from friends, he is completely self-taught. "I think a formal music education is a good thing for some people," he quietly confides. "But not for me. I've always gone for natural feel — straight from the heart."

When we asked about the writing and recording of "Aliens," we got a surprise. "I wrote and recorded the whole thing in two days. I came up with the intro first, se-

quenced everything into the Roland MC-50, and then started working my way through the tune, writing it as I went along." In addition to the EPS for guitar sounds, Rick used a Roland S-550 sampler for drums and effects, and a Korg M1 for a variety of sounds (including bass guitar). "Basically, the whole song was quantized to some degree, except for the solos. I must confess, I had to slow the tempo down to get that one spastic, half-step triplet run that's in the guitar solo. But everything else in the solos was played in live."

Although Rick describes himself as a "one-handed bandit — I play everything with my right hand," his style is bound to translate well on stage with his newly acquired Lync remote MIDI controller. He plays occasional gigs around the San Francisco Bay Area, but mostly spends time in his home studio. Rick has one solo record to his credit, *Subliminal Self* [Inertia Records, 343 S. Bernardo,

Sunnyvale, CA 94086], which was reviewed in the October '89 issue of *Keyboard*. Rick warns readers, "My style has changed a bit since the record was released. Compared to my new stuff, it's pretty harsh. I plan to release another solo album on Inertia sometime in the future, but I don't want to discourage the possibility of recording for another label as well."

That about wraps up another Soundpage Contest. So start laying down those tracks — next year's competition is just around the corner.

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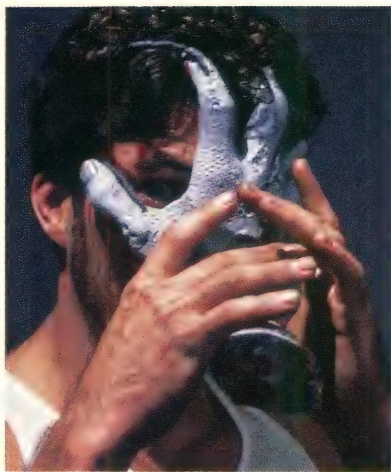


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HOLD ON TO YOUR FACE...

The hand of fate moves in strange ways. In *Netherworld*, the release-of-the-month from the B-movie elves at Full Moon Films, it flies around in a clammy labyrinthine basement, taking the corners gracefully, picking up speed on the straightaways, and sprouting claws and a snake head or two on its fingertips before latching

LARRY FAST



ALDO MAURO

onto the face of some poor slob who managed to be in the wrong place that night. ■ But months before our little friend's first flight, a more benign hand of fate brought two guys

Larry Fast at home, far from the clammy clamor of *Netherworld*. (L to R: rack containing, top to bottom, Synchronous Technologies SMPL Lock, MXR graphic EQ, custom-made patch and mixing module, Eventide H-910 Harmonizer, another SMPL Lock, Pioneer half-track tape deck, and TEAC 6 x 2 auxiliary mixer; Tascam M-50 mixer, Macintosh IIci, Yamaha SY77 below Moog 15 modules and rack containing Mark of the Unicorn MIDI Time Piece, E-mu Proteus/1 XR with orchestral expander, Roland D-110, and Roland D-550. Fast sits behind Korg Wavestation.)

together who, under normal circumstances, might never have met. Sure, they're both from New Jersey. They both do music. They've both been on the cover of *Keyboard*. But who could have predicted that Larry Fast and David Bryan would wind up collaborating on the *Netherworld* soundtrack — and making plans to do

the same on future projects that

will appeal to, let's say, more

elevated taste? ■ Long before

it became fashionable to be-

come a home studio hermit,

Fast was passing an unhealthy

number of hours behind

closed doors with tape spin-

ning and synths humming. In

DAVID BRYAN



Far from the Jersey shore, Bon Jovi's David Bryan thumps out a roadhouse piano groove at Tonk's Place, the sleazy and Satanic New Orleans dive in *Netherworld*.

BY ROBERT L. DOERSCHUK

SCORE IN THE DEPTHS OF NETHERWORLD



NETHERWORLD

1974, at age 22, he released *Electronic Realizations for Rock Orchestra*, the first in a string of solo albums under his corporate *nom de plume*, Synergy. These projects earned him recognition as a major innovator in electronic music. As a player and a consultant, Fast had a hand in many important developments: He gave the premiere performance on the first polyphonic synth, featured guitar synthesis on his 1978 album *Cords*, designed a modular synth setup for Rick Wakeman at the age of 20, toured and recorded extensively with Peter Gabriel, and logged studio time with everyone from Barbra Streisand to Blue Oyster Cult. Wendy Carlos, his inspiration for getting into the business, is an admirer of his work.

Then there's David Bryan. While Fast was tinkering with new gizmos in the studio, Bryan was perfecting his licks, getting his hair just right, and tearing up the charts with Bon Jovi. Synergy was about meticulous perfectionism in non-performance art; Bon Jovi was about four-on-the-floor rock and roll without smudging your stage makeup. The same *Keyboard* readers who applaud whenever we profile Fast, and plead for information about when his old albums will come back into print, reacted to Bryan's appearance on our Dec. '88 cover with something akin to revulsion. "You've got to be kidding!" wrote one. "A man

with so much ego and so little to offer musically should not be in such a high-quality magazine," huffed another. A third was "shocked and offended." Et cetera, et cetera.

One wonders what the verdict will be this month. Has Larry Fast sold out? Has Bryan become respectable? Were reader perceptions of both wrong to begin with? Do rhetorical questions really matter anyway?

The answers, if they exist at all, are in the soundtrack to *Netherworld*. Hammered out in three weeks of deadline-crazed frenzy, it's a more substantive work than the genre normally requires. One might expect a schizoid symbiosis of Fast's sequencing chops and Bryan's real-time riffing. What you actually get is a kind of parallel display of strengths, marshalled for the sole purpose of making audiences squirm and shriek. Their score is a study in contrasts: Scary Count Floyd-type organ swells alternate with extended pieces that combine coherent thematic material with evocative abstract interludes. Bryan's boozy bar band tunes, performed with yet another *Keyboard* cover alumnus, Edgar Winter, and a band of local club musicians, frame moments of synthesized cacaphony. Their styles never integrate as fully as they probably should have, but even so the *Netherworld* score makes several points.

One is that living in New Jersey may be all the common ground you need to overcome musical differences on a horror movie job. More important is the fact that we should exercise caution when laying preconceptions

on others. For all the odd couple angles, Bryan and Fast had no trouble working as a team. As pros, they came into *Netherworld* with the expectation that their relative gifts would form bridges rather than barriers on a cooperative assignment. Those of us who judge other artists or entire genres too quickly might learn from their lesson.

Fast was about to plunge into a series of production projects for new artists, and Bryan was already in the midst of rehearsals for Bon Jovi's summer album and fall tour, when we cornered them somewhere in the Garden State.

■ ■ ■ ■ ■

What exactly brought you together?

Fast: Richie Sambora [guitarist for Bon Jovi] was doing his solo album [*Stranger in This Town*, Mercury] about a year ago. He was being co-produced by Neil Dorfsman, who is very well-known for the projects he's done with Dire Straits, Bob Dylan, and Paul McCartney. Neil and I had overlapped on some of the [producer] Jim Steinman projects in the mid-'80s, so I got a call from Neil's people during the course of Richie's album. He was looking for some changes in sound texture from what David was bringing to the record. Nobody was suggesting removing David's work, but from what I can surmise Neil felt that it was starting to sound a little too much like a Bon Jovi record, so he wanted someone else to come in and make a few changes.

So you first met David at the studio?

Fast: Actually, we met on the phone first, just to talk about what we would try to do. Of course, I knew of David. I'd seen his interview in *Keyboard*, and I certainly knew of the band's success. We hit it off on the phone right away. He sounded like a great guy, and I could tell that he knew his music inside out. We started working a year ago January, on tracks he co-authored. I was very much taken with what he had done. I could also see what Neil was getting at. So with everybody keeping an open mind, no bad attitudes, no ego problems, we were able to plow through the overdubs, working primarily along the lines of what David normally does within the band context but with me bringing in some sound and production approaches that have come to me with my experience over the years.

Bryan: Larry and I got along so good. This thing with Larry is really big. He's a giant in the industry, man. He knows his way all the way down to electrons. I mean, listen to those Gabriel records he was on. Amazing! So working with him was a pleasure.

What led from the Sambora record to Netherworld?

Fast: One of the things we talked about



The club band at Tonk's Place, recording live during the *Netherworld* shoot. (L to R: violinist Nancy Buchan, guitarist Troy Turner, bassist Harold Scott, saxophonist Edgar Winter, pianist David Bryan. Drummer Stanley Watson is hidden behind Buchan.)

around the dinner table during Richie's record was, "What do you want to do when you grow up?" Each of us talked about the fact that the idea of film scoring was intriguing. Although David is certainly more than capable on the composing end, he hadn't worked with the mechanical details of film — the nuances of how to put synchronization together. I came from the other side. Synergy is a lesser-known entity than Bon Jovi, so I mainly do small projects — artsy European TV movies come my way. To work out of Hollywood, you *need a little more clout*, especially if you're going to remain on the East Coast. So in our casual talk, it was, "We know we can work together. Let's see if we can do it."

David, did working with Bon Jovi leave part of you creatively untapped?

Bryan: Yeah, but other parts grew exponentially because of the players I work with. It's not a matter of us being just another heavy metal rock and roll band; we're really good players. I mean, Tico [Torres] is, like, the best drummer in the world, so all you can do is keep growing. I kept getting better at my own game — writing, coloring — and I like that.

Fast: The part of David that can come out through film work isn't suppressed in Bon Jovi; it's just that that isn't the place for it. I mean, he's one of the best keyboard players I've ever heard. He's got two pianos — a Yamaha and a beautiful Steinway — in his living room. He sits down and runs through his Hanon drills to warm up. He can play rings around me on that stuff. He's in Bon Jovi because that band was going somewhere, and they only took in the best people. All of them are very good at what they do. But the total package is a little different from the specific talents they each have. David is then saddled with having the glam band image superimposed on top of what he has to offer.

Bryan: I always wanted to do scoring. I'd been classically trained for 15 years and had always composed, so it was something that intrigued me.

Fast: So when David flew to L.A. to play with Bon Jovi at the Academy Awards in April ['91], I said, "Go get us a film score." Well, two days later, he called from a business office and said, "Fax me your resumé with the films you've done, because I think we've got something."

Bryan: It just happened that I was free to

do *Netherworld*. The timing was right.

How did you get connected to Full Moon?

Bryan: Joseph Bon Jovi, Jon's cousin, got me the gig. He has a lot of connections in California. I had recorded a solo piano album in my house after the last Bon Jovi tour — 13 original songs live to DAT. Some of the things

Bryan: That beginning was just cut up from the movie. We just picked seven or eight themes and spliced them together.

So the opening music foreshadows themes that you introduce later.

Bryan: That's what I wanted to do. I wanted to have a montage of things that you're not going to hear yet, but as the score goes on it'll sound familiar.

Fast: There were signatures throughout the movie. Whether they were sounds or motifs, the director laid it out for us that he wanted certain characters to have identifying sonic elements. That gave us pieces of the jigsaw puzzle. It was up to us to fit it together, using the script and the director's notes to begin with.

You began writing the score before you got copies of the film itself?

Fast: Editing took them longer than we had anticipated. We received locked reels — reels on which there won't be any more editing — close to a month later than we were supposed to get them. That put a crimp in things because they didn't move the end date; they just compressed the amount of time that was left to work. Now, you can whine about that, but it's very typical in this

business. David and I had both received copies of SMPTE-coded but non-locked work prints. They had dropped in some music from rock records in a couple of places, so they would have some rhythmic structure while they were doing film edits. These weren't particularly distinctive pieces of music, but at least they gave me a feel for the tempo they wanted. So rather than sit around twiddling our thumbs while waiting for the locked ones, I got started on a couple of themes.

Since you didn't have a final print, were you forced to write these themes in a more modular structure than you might normally use, to accommodate edits that might subsequently be done?

Fast: Yeah. For instance, where Corey, the protagonist, arrives at this mansion that he's just inherited, there's a long scene where he's being ferried up the river. That had some temp music that definitely wasn't going to last, but I knew that whatever we did was going to eventually be a single block of music. So I started working on it. I got it about halfway done, then put it aside. Later, when we got the final locked version and we knew how long it would be and where the important hits were going to fall, I pulled that file from the MIDI sequence, tweaked it a little

CONJURING NETHERWORLD

The setup used by Fast and Bryan on *Netherworld* was pieced together from both of their systems and hooked via MOTU's MIDI Time Piece to a Macintosh II running Passport Master Tracks Pro 4. Modules included Akai S1000, Alesis QuadraVerb, E-mu Proteus/1 XR, Korg T1 and Wavestation, Roland D-110, D-550, and R-8M, and Yamaha SY77, TG77, TX816, and SPX90.

were in something like a rock and roll structure, where I had a verse, a B verse, and a chorus. I also had one piece that was straight-out classical. But I guess it was all like George Winston with balls. I gave Joseph the tape and said, "Shop it around. See what people think." He got it over to [executive producer] Charles Band at Full Moon. He listened to it and said, "This kid knows how to do themes. Let's get him a movie."

Fast: Two months later, we were on location in New Orleans.

Isn't it kind of unusual for the soundtrack composer to be involved that early in the project?

Fast: It's not essential, but if you can be there early on, I think it brings a little bit more quality to your work. There were scenes shot inside this mansion, so when we were on the set we could get what the place smelled like. We could feel its mustiness and creepiness. That affects what eventually dribbles out four months later, when you're actually composing.

Let's start with the opening music. Unlike many films these days, Netherworld doesn't kick off with a strong hook — the kind of motif we remember from Batman, Star Wars, and so on. Your score kicks off with some rather abstract stuff.

NETHERWORLD

bit for time, then handed it to David, and he finished it up.

So your work with David wasn't divided along the lines of him handling the composition and you doing the orchestration.

Fast: We shared a lot of it. There are probably more of his themes than mine in the movie, but it isn't anything that was planned. It just happened that way. I came up with one theme that we both liked very much, but the director considered it too artistic or too classical, so that was thrown out and David wrote the replacement.

Which scene was that?

Fast: That was where Diana, the young blonde, steals into Corey's room and notices that he's been "transformed." [Ed. Note: Corey is being turned into a bird by a gang of demons who hang out at Edgar Winter's bar.] That was all a string quartet I had written with a lot of atonal qualities to it — kind of '30s modern. It wasn't horror movie enough, I guess.

Save it for your next arty project.

Fast: Exactly. I've got it on a nice DAT mix.

Those sorts of cues were obviously composed. Were other parts of the score improvised to picture?

Fast: David and I were a little different on that. I tend to work in a more tedious manner, which is to have some little thematic idea that wasn't inspired by the picture. Then I would develop it, camera shot by camera shot. But David is very good at watching the screen and improvising, and I would capture what he played in the computer.

Bryan: I'd start by playing piano. Get the theme and the beat going. Then we would go into [Passport] Master Tracks Pro 4. We would take, say, the top three fingers and assign one instrument to them, then put some other sound on the rest of the hand. Maybe the pinky of the left hand would play a noise instead of a note. Then we would clean it up and maybe make a few changes in the melody. It was a really cool way to work.

Had you used Pro 4 before?

Bryan: Yeah. It's easier than [Mark of the Unicorn] Performer. For every 15 steps you do on Performer, you can do it immediately on Pro 4. Performer slices things a little thicker. You can look at something four different ways. But sometimes you don't need that.

Fast: David was using Performer on Richie's record. He found that it wasn't gelling

for his style of working, so he shied away from doing sequencing in the Mac at all. Then I blew in with Pro 4, which works very well on session dates where you need to move a lot of data very quickly and efficiently. He was watching over my shoulder on Richie's project, and he picked up on how he could use it. I put him in touch with the people at Passport. They got him manuals and copies of the program. With just a bit of guiding, he was off and running.

How did you decide what gear to use on Netherworld?

Fast: I had my own rig, which is rather modest by many people's standards. I know a relative handful of devices very well, and have either assembled good libraries for them or I know my way around the editors and front panels so well that the programming instincts I developed on Moog equipment years ago are still there. I'd feel very lost if the sound is almost there but not quite and I can't get in there and tweak. Even if it's something as stupid as the decay time being wrong, I want to make it right or it irks me.

Bryan: Larry's whole vibe is "less is more." My whole vibe is "more is more." I have 50 billion keyboards and he has six, but he can make them do everything. [Ed. Note: For list of gear used on Netherworld, see page 43.]



Why didn't you use any vintage stuff?

Fast: I've found that when you have a massive number of cues, like we did here, and a lot of different sounds, and the director is going to ask for cuts and redos, that repeatability — the ability to archive what you've done and bring it back and change it, including the sequence itself and all the elements that made it, even the embedded mix of controller 7 information — and rock-solid, bullet-proof equipment are so important. Otherwise you spend more time trying to recreate some old analog sounds that hum and buzz and have different levels on different days. Everything in *Netherworld* is archived. I could probably load the system up right now and recreate any cue from the movie in real time within 20 minutes. Besides, in making a movie score, I don't think it makes much difference where you get your sounds in terms of whether a scene works. If it was a particular stand-alone music record, I can certainly see taking the time and effort, but here efficiency was more important. When you come down to it, I can take a [Roland] D-110 and put together a four-oscillator sawtooth sound with some filtering on it that sounds pretty vintage.

Bryan: We used one of my Memorymoogs on Richie's album, though, because I really like the Moog for the fat stuff.

Fast: During that interim period when we were waiting for the locked reels, I had an idea for some of the voodoo rhythm sounds we were going to need. So I made up some loopy things from ratchety, rattlesnake-tail sounds that were primarily in the [Yamaha] SY77 and transferred to the TG77. And, of course, I made up the sound for the dreaded flying hand of Satan earlier too, so we wouldn't have to spend time on it later when we were in composition.

Why not have some kind of dramatic musical cue when the hand latches onto people's eyeballs?

Bryan: We just figured that if a hand was flying, it would make a jet noise.

Fast: That was the SY77. I treated it like an old analog synth, except that the extra *whoosh* came from the overdrive controlled by aftertouch. It was actually a playable noise — basically one note with a ton of aftertouch in the controller information. One or two controllers were controlling some of the filter cut-off. Some of the onboard effects did the reverb sounds, also modulated by touch. It was sort of a real-time performance played to picture with the sequencer running.

Bryan: Talk about timing! The hardest thing was when it went around corners. We would go frame by frame to get that happening. Then,

with Pro 4, we would draw a pressure curve so that the actual curve would go with the hand. Otherwise, it would have been impossible.

You've got a lot of low drones going throughout the film too.

Fast: Those drones were kind of requested. They actually replaced some of the more subtle cues. We had discussed or maybe even executed an ominous theme for the Mr. Yates character, but it was requested that he revert to a drone. [Ed. Note: Yates is a syrupy lawyer with a feather in his head. He never shakes hands.] In a way, it made things easier. When we were getting pretty fatigued at the end of the project, it was like, "They want a drone? They'll have a drone." If it was an easy drone, it was probably a D-110, because that's as close as you're going to get to a quick analog patch. In the old days of drones, you'd just turn that filter on the Moog, and when the right amount of timbral high-frequency element crept through, you knew you'd hit it. I still do it that way, but instead of grabbing a knob, I drag down a numerical graph.

There were some prominent piano sounds. What was your source for them?

Fast: The pianos were mostly the Yamaha ROM set in the TG and the SY77. We had an enormous variety of pianos available to us. David has quite a good Akai sample collection,

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NETHERWORLD

and of course the pianos in the [E-mu] Proteus are good. But when it came down to it, the best set was the one in the Yamaha.

Bryan: That SY77 grand piano is the most amazing thing I've ever heard from Yamaha. It sounds like a piano! They finally got it! I had to fudge it up a little bit, take certain things down, but basically that's it. I was blown away.

Another important sound in Netherworld is the modulated parallel lines that seem to evoke the cry of ominous circling birds or, at times, air raid sirens.

Fast: We got that comment from somebody who came in while we were working on the movie: "How come London is being bombed in Louisiana in the middle of the 1970s?"

Bryan: You heard that when Dolores, the bird lady, walked in. [Ed. Note: Dolores lives behind a "keep out" sign in the basement of Edgar Winter's club and gets along pretty well with Satan's hand.] And when the dove was sitting there on the road, you heard that too. It was supposed to connect in your

mind: "Oh, that's her." It was the same when Corey was in bed and that big statue of the bird was there. [Ed. Note: There was this bird statue, see, and . . . oh, never mind. Just rent the movie.]

Fast: I think that sound was a TG77 patch. In most cases, recurring sounds were based off of a single patch that had enough controller information built in to make it different in different situations. It was probably very straightforward — a sine-wavey, low-harmonic-content modulated waveform.

When it comes back in the last big cue of the film, where Corey takes a bath with the bird lady and meets his dead father, you seem to give that sound a bit more edge.

Fast: It might have just been pushed more in the mix. Recording techniques came in somewhat to make things edgier. The one thing that transpired in the mix is that echo times, the reverberation decay times, got longer as things built toward the climax. That was more a recording engineer thing than a patching or composing thing.

That was quite a long cue.

Bryan: I think that was the hardest thing in the whole movie.

Fast: It was wall-to-wall music. The script called for Corey to be in two places at once. He's in the netherworld in a spiritual way, and

he's in the temporal world in the whorehouse from Hell. There's communication going on between the two, yet the dreaminess of him being in a tub with candles burning and the woman by his side made it tough to get the horror aspects of the netherworld in there.

Bryan: Those last five minutes took 22 hours of work. It was so hard not to give it a jumbled feel, like, "Oops! He's happy! Oops! He's sad! He's in the tub! He's dead!" It was really hard to smooth over all of that.

Fast: Eventually it began to fall into place. There were elements in the sound that could carry through and be treated as tension-and-release. The key was something that David and I worked with a lot on the movie, which was to crack the code, whether it had been planned or inadvertent, of how the film editing was done.

Bryan: Larry showed me that if you look at movies without any sound, you can tap out a beat to where the cuts fall. The guys who edit a film are editing to a beat. They'll do it to a heartbeat or the multiples of a heartbeat — half-time or double-time. You see that it's, like, 62 or 70 beats a minute. You notice that the camera cuts usually fall on the beat. That suggests what kind of music you're going to do.

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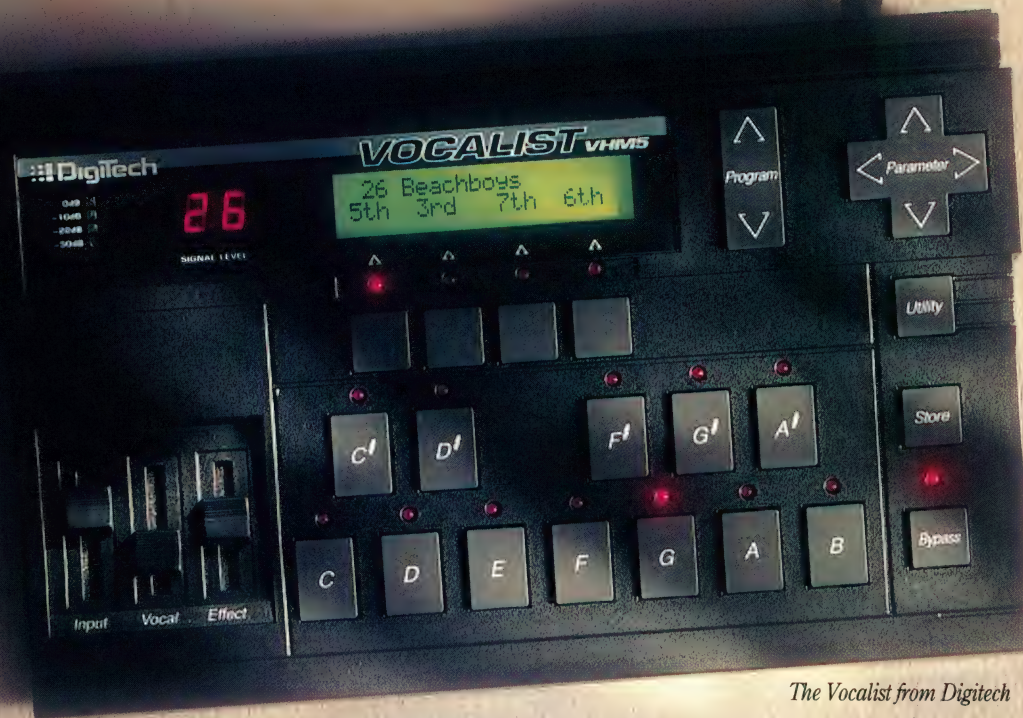
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Musician magazine, 1992 Most Innovative Product of the Year. 1992 Most Innovative Effects Device in the category of signal processor.

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come more quickly, you would accelerate the tempo?

Bryan: No. It'll still be 70 beats a minute, but the cuts will be on the quarter-notes instead of the whole-notes.

Fast: In that last long scene, we found the common denominator in the sort of syncopated pulse that goes through some of it. That carried us through the dreamy scenes, so we could have the quieter ambient chording over that and then kick back into high gear with nastier brassy sounds when things got ugly. The easy part was coming up with the themes; the tough part was finding that rhythm, because there were an awful lot of scene cuts there.

Bryan: We worked on that cue right up to the deadline, then I flew out to L.A. with the DAT. Up to that point, there had been no rejection. They liked every piece of music we had sent them. I was the happiest guy who ever lived. But for this one, the director said, "I don't like it. It's not right. We have a studio out here with a keyboard." — I think it was a [Korg] T1 — "You think you can go in there

and fix it?" And I said, "Let me try to fill you in. It took us 22 hours with 60 keyboards and a computer to do this cue. It ain't gonna happen with one keyboard!" Fortunately, when they mixed it, it fit right in with the dialog, and he loved it.

Aside from the sounds and the beat, how did you keep the thematic content of the music consistent through all those cuts?

Bryan: I went from major to minor in the themes, but not in an obvious way.

Were there any original samples done for the project?

Fast: It was all pretty much out of the library. In fact, there was very little sampling in the score. There were lots of synthesis patches, or hybridized ROM and synthesis, as many of the instruments are now. We did have David's Akai sample library.

Bryan: We also used some Mellotron voices that I had sampled into my Akai S1000. I've got two S1000s with Eltekon removable 650-meg optical drives. There are libraries of different sounds on there.

Fast: We got some good, fat, pad sounds out of that. Most of the rest of the samples were out of the [E-mu] Proteus, because it was there and I knew it inside out. I knew what was in the ROM set if we needed to put a sound together, and I knew what I had in my library.

In addition to the synthesized stuff, there's a lot of bar band music in the soundtrack.

Fast: I had nothing at all to do with that.

Bryan: [Art director] Billy Jett put that band together for us. He got three local guys, and they were right on the money. One of the first things we did was the "Netherworld Waltz," which I wrote on a little Yamaha B200; I bring it along for writing because it's got speakers built into it. We had a tape of the song because the film company wanted one. We took it into the trailer, listened to it, then went onto the stage to rehearse it. And *bang*, we recorded it straight to DAT. No overdubbing: We had to do it right, or we had to do it again.

You're on screen with this band a lot, playing at the Satanic night club Tonk's. In those scenes, you seem to be playing an unusually ratty upright piano.

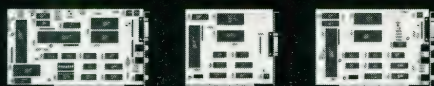
Bryan: It was from 1880 or something. As I was playing the waltz, when my hand was down on, like, G, my index finger and my thumb were picking up the other keys that had stuck, and I was feathering the sustain pedal to loosen them up. And all that was clunking into the microphone we had in the piano.

What did you use for the actual piano sound on the CD?

Bryan: That piano.

Why? If it was that trashy, why not use

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something else?

Bryan: That's all they had. We had to do it right there.

But why did they get that piano in particular for you?

Bryan: They wanted it because there was a mirror on it. They're film people; they don't know.

Aside from that relic, what keyboard did you play from most often in this score?

Bryan: I used a [Yamaha] KX88. I was go-

ing to use the MIDled grand in my house to record all the MIDI events while keeping the acoustic stuff, but in the end there wasn't enough time. We had three weeks and four days to do the whole thing.

How did you get it all done in so short a time?

Bryan: Larry slept at my place, and we worked in my studio from 11 in the morning to three in the morning every day. We would do a whole batch of cues and send them out on DAT. Then the music editor in California coded it and put it into [Digidesign] Sound Tools.

Fast: One of our proposals was that we would have time code embedded in Sound

Tools files for him, but it turned out not to be necessary.

So you were using Sound Tools at your end too?

Bryan: We had just gotten it, so the learning curve was too heavy for the time.

Fast: Actually, I had it going into the project. Between the shoot and the actual beginning of the movie, I revamped my system and went up to a fairly well-loaded Mac IIci with Sound Tools and the Sound Accelerator card and [Opcode] Studio Vision — all the things I wasn't able to use on the smaller [Mac] SE. It turned out to be very helpful, because we were doing a lot of collage effects, where we were mixing elements of cues together to create some intro and outro pieces. Audio manipulation became a part of the process.

Now that your first film project is done, what have you learned about the soundtrack game?

Bryan: It's different, man. With an album, I'm part of a team. I'm not the main dude. With this, if it ain't good, it's my fault. The part that's really kookie is that you're writing, like, 35 songs. There's more than 60 minutes of music in 30 or 40 cues. And all that has to be tied into one message. That's why everything in this score related back to one key and to the "Netherworld Waltz." Whether it was major, minor, or relative, everything was connected. Another thing I learned is that the music is really the most important thing in a movie, and not just because I'm a musician. It was amazing to see a movie without any music. It sucks! It's the flattest thing in the world. The music really validates it. But it's the last thing in production, and it's the thing they care about least.

What about scoring for this kind of a film, as opposed to something more mainstream?

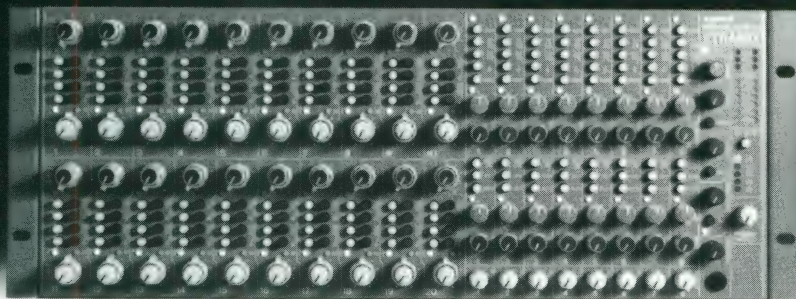
Fast: David and I went into this project not pretending that it was something that it wasn't. Basically, we did music for a film that is this kind of a film. It's like a comic book — all bright primary colors and broad strokes. When somebody gets thumped, it's big and it's loud. There is some room for subtlety — far more than you might expect. *We found* that no matter how much direction we got to keep those broad strokes, as soon as we were left to our own instincts, we gravitated toward something a little more melodic and sophisticated.

Bryan: Let's face it. They're not gonna give you *Gone With the Wind* your first time out. ■

FOR FURTHER READING

David Bryan was interviewed in the Aug. '87 and Dec. '88 issues of *Keyboard*. Interviews with Larry Fast ran in Mar. '77, May '80, Aug. '86, Mar. '87, and Mar. '90.

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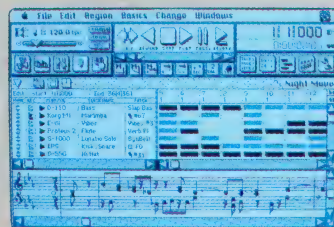
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**ACRES & ACRES
OF GEAR ALL
UNDER ONE ROOF**

BY MICHAEL MARANS

Still hungry? You mean the equipment feast we spread out for you last month wasn't enough to satisfy your craving for new gear? Actually, that's not too surprising, what with binging and purging disorders affecting even the most fastidious MIDI connoisseurs.

So it's in that spirit that we once again whet your appetite for the innovative and the delicious with a trip down the aisles of the world's "most excellent"

gear supermarket: the convention of the National Association of Music Merchants. Bring a doggie bag; there's bound to be leftovers.

**MORE TALES
FROM THE LATEST
GEARHEAD FEEDING
FRENZY AT NAMM**

DISK-BASED DIGITAL RECORDERS

In a "surprise" move, **Mark of the Unicorn** defied convention and introduced the Digital Waveboard (\$1,495), a NuBus

card for the Macintosh that supports direct-to-hard-disk recording and playback of digital audio. No

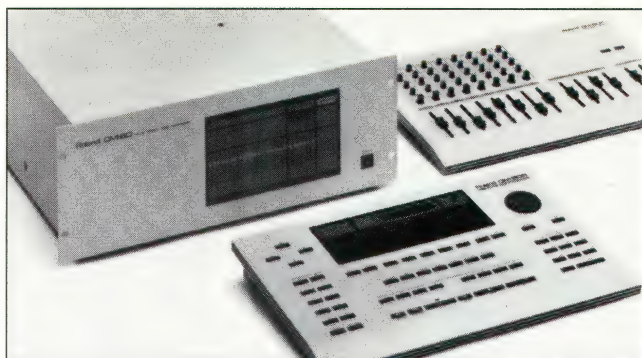
ILLUSTRATION: TIM TEEBKEN

GEARHEAD FEEDING

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FRENZY AT NAMM

Hardware components of Roland's hard disk recording system: the DM-80 Multi Track Disk Recorder, the DM-80-R remote controller, and the DM-80-F hardware mixer interface.



surprise: Audio and MIDI data can be recorded, edited, and played back simultaneously when the card is used with MOTU's Digital Performer MIDI sequencing software. The real surprise comes from the fact that the only other major players in the Mac sequencer/digital audio market — **Opcode** (Studio Vision) and **Steinberg** (Cubase Audio) — have built their systems around **Digidesign's** Audiocard, Sound

Accelerator, and Audio Media NuBus cards. Whether MOTU's decision to go it alone will mean success or failure for the Wavecard remains to be seen. The card differs from the Digidesign cards in that it doesn't have ADCs and DACs; audio input and output is via the AES/EBU and S/PDIF digital I/Os. MOTU's logic behind this design is that it saves the end user money as they can use existing DAT ma-

chines and/or stand-alone converters rather than paying for one that's built into the card. (**Turtle Beach** has had considerable success with their 56K system for the IBM-PC, which is also designed with no on-board A-to-D converters.) The Wavecard version 1.0 supports two tracks of 44.1kHz or 32kHz audio; the version 1.1 update will add two more audio tracks and a SCSI buss connection.

Speaking of **Digidesign**, a preview copy of Pro Tools version 1.1 was being ably demoed by a team of Digidesign marketers. Features (of the system, not of the demonstrators) include support for the Pro Tools system accelerator card, expansion to 8, 12, and 16 channels of recording and playback, and enhanced timecode entry and region-spotting utilities.

Also new for the Mac: **Plasmec's** ADAS-MC hard disk recording system (\$1,500, distributed by **Digital I/O**). Previously available only for Atari computers, the ADAS-MC features 44kHz and 48kHz recording, non-destructive editing, timecode-driven cue sheet utilities, and MIDI control from sequencers running on the same computer. The company also announced a stand-alone version of the unit and plans for the release of a Windows-based version for the IBM-PC.

Yep, it's true: The Mac isn't the only platform for digital recorders. **Digital Audio Labs** was on hand with their CardD stereo direct-to-disk system for the IBM. The system consists of the CardD (\$795) audio and DSP card, EdDitor (\$250) recording and editing software, the I/O CardD (\$295) digital input/output companion buss card for the CardD, and the Developer's Software Toolkit (\$500), which contains a library of C-language functions for the CardD.

New features of the EdDitor software include fade, crossfade, recording VU meters, edit history, markers and save/load edit list.

Hybrid Arts debuted Digital Master EX, an Atari-based 4-channel, 16-virtual-track direct-to-hard disk recorder/editor. The system con-

SOUNDS

SOUNDS

SOUNDS

nVision: Lightware Volume 1 for **Digidesign's**

SampleCell, 55 banks, including drums, ethnic instruments, keyboards, cymbals, bass, and orchestral sounds, \$295.

Metra Sound: Three sound cards, Hit Sound Collection, New World Sound Fashion and Modern Sound Fashion, for the **Korg** M1 (RAM cards: \$99 each; ROM cards: \$69 each; dist. by East-West Communications).

Roland: Three RS-PCM cards, Super Strings, Super Ac Guitar, and Super Brass, for the U-20, U-220, D-70, and MV-30 (\$74.95 each); five cards, Drums and Percussion Standard, Drums and Percussion Dance, Rock Drums, Strings Ensemble, and Acoustic Bass for the JD-800 (\$165 each); two cards, Sound Element and Special Collection, for the D-70 (\$79.95 each); two cards, classic electronic drums and metallic percussion, for the R-8 and R-8M (\$74.95 each).

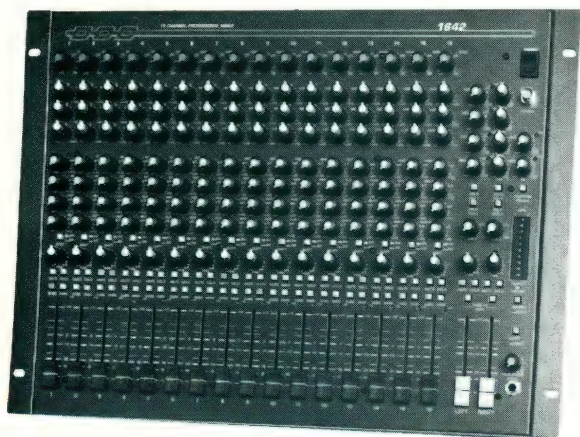
Sound Source Unlimited: Tons and tons and tons and tons of sound cards, disks, samples, programs, and patches covering new age, dance, rock, classical, and jazz textures for just about every synthesizer on the planet. We're not kidding. Our fax machine is still trying to print out the list. They've even got software that'll turn your Mac into the Starship Enterprise. (Gads. We hope our computer doesn't get illogical on us.)



sist of a single-space rack-mount box with four channels of AES/EBU digital I/O, connections for optional A/D converters, and an integrated SMPTE reader. The company plans to have 8- and 12-channel expansion by the end of the first quarter of 1992 (4-channel system: \$4,985; with computer and 100Mb hard disk: approximately \$6,000).

On the dedicated systems front: **Roland** had their DM-80 Multi Track Disk Recorder (\$9,999) on display, complete with the DM-80-R remote controller (\$1,895), the DM-80-F hardware mixer interface (\$1,295), and the Mac-based DM-80-S Track Manager software (\$650).

These days, you're just not really a happenin' kind of person unless you press your own CD. To that end, you'll be happy to know that **Yamaha** announced a price reduction in their YPDR601 Professional Disk Recorder — down from \$20,000 to \$13,980. A bit pricey for you? **Carver's** new PDR-10 compact disk recorder comes in at just under \$8,000. Still out of your reach? You last hope



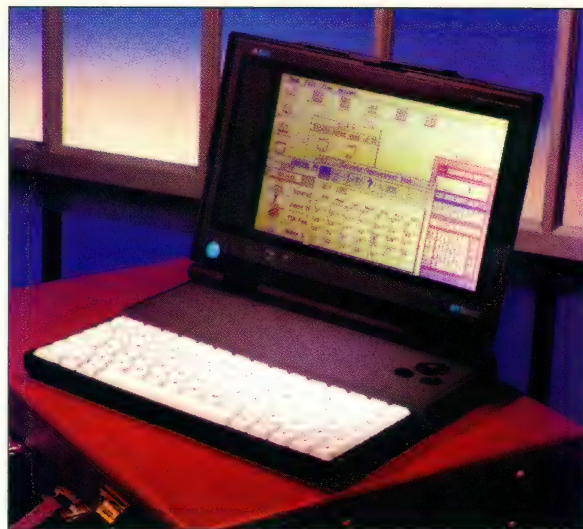
Rackmount Rage #1: DOD's 1642 mixer.

is **Marantz's** CDR 600 rack-mount recorder, which lists at \$7,500. Betcha next year they'll all be under five Gs.

RECORDERS, SYNCHRONIZERS, & AUTOMATERS . . . AUTOMATERS?

Question: Why did the musician buy the **Fostex** X-18 multitrack cassette recorder? Answer: Because it offers four inputs, runs on AC or battery power, has track ping-pong functions, and only costs \$399. Question #2: Why did the other musician buy the Fostex X-28 cassette recorder? Answer: Because it does more stuff than the X-18, such as let you use up to eight inputs, record simultaneously on all four tracks, and monitor the stereo, aux, and monitor busses. Plus it boasts

Atari's STBook (\$1,999) weighs in at just over 4lbs, has a footprint about the size of a standard sheet of paper, and boasts a hard disk access time that's fast enough for it to act as the front end for direct-to-hard-disk recording systems. It will also do your homework for you. It will not, however, make up excuses when you cut classes.



a rugged new transport and only costs \$599. Any more questions? Just one: Why would **Fostex** build a product called an MTC-1/B? Simple. They wanted to provide a way to control the company's popular R8 eight-track recorder via MIDI machine control commands, and the MTC-1/B (\$350) does just that. Aren't you glad you asked?

Cassette lovers will appreciate **Marantz's** new PMD dual cassette deck (\$599), which offers optically sensing auto-reverse, Dolby B, C, and HX Pro, and independent full-logic transports. If cassettes are a thing of your past, check out the company's new DAT recorder, the PMD 700 (\$2,500). Features include extremely light weight (under three pounds), 1-bit A/D and D/A conversion, AES/EBU and S/PDIF digital I/O, balanced mike and line inputs, and no SCMS.

Tascam had a bunch of new products on display, although the one that promises to be

the most groundbreaking was off limits to our prying eyes. So how do we know that the new product is so promising? We simply threatened everyone we thought might know anything about it until they cracked. So here's the scoop: The new piece is a competitively priced digital recorder that's based on 8mm tape technology. Looks like there will be a couple of players in the affordable digital recording marketplace before too long. . . . One of the products we were allowed to see was the LA-80 (\$525), an unbalanced-to-balanced line converter that offers eight RCA inputs and eight male XLR outputs. The LA-81 (\$525) is configured in exactly the opposite way and is designed to convert balanced into unbalanced signals. Also on hand: The ATS-500 SMPTE synchronizer (\$799), the CD-601/RC-601 CD system transport controllers (\$1,399 and \$749 respectively), the 202 MKII cassette dubbing deck (\$399), which offers parallel recording abilities, and the Portastudio 464 four-track cassette recorder, which includes XLR mike inputs, dual effects sends, and a dual-point autolocator. The company also announced the MMC-100 interface, which will translate MIDI machine control commands from and to Tascam's Accessory



Rackmount Rage #2: the Tascam MM-100 keyboard mixer.

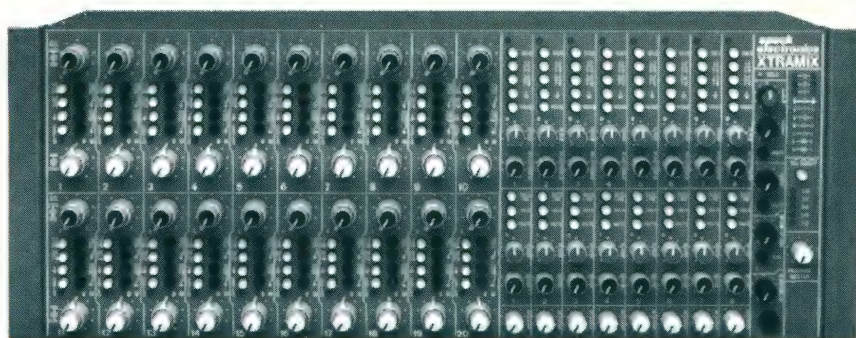
GEARHEAD FEEDING

COME ALL!

FRENZY AT NAMM

II connector, which is included on many of their tape recorders.

At the **Russ Jones Marketing** booth: The **Niche** Automation Station (\$799), which provides control of up to 48 audio channels and 144 MIDI parameters, plus transport control for tape machines and sequencers. The unit offers transport controls, four programmable rotary knobs, and 16 faders with mutes and solos, which can be grouped in a variety of ways, including nested groups. Snapshots may be stored and recalled, and



Outrageous Rackmount: Speck Electronics' Xtramix packs 40 inputs, eight sends, eight stereo returns, and eight subgroups into only four rack spaces.

crossfade/cross-switch routines are supported.

Need affordable automation? Check out **Audimation's** MX-816 mix automation unit. The eight-channel version (\$489) reportedly has 95dB signal-to-noise, 0.01%THD, and frequency response of 10Hz–30kHz ± 1 dB. The MX-816, which makes all connections via rear-panel RCA jacks, can store "fader" positions as internal patches. Fader snapshots

can then be recalled via MIDI program change commands.

When it comes to making products that support other products, nobody does it quite like **JLCooper**. Their latest venture: The dataSYNC (\$349), a device that generates MIDI time code from the sync output of the . . . the . . . (Ouch! Quit twisting our arms!) **Alesis** ADAT digital eight-track recorder. This allows the ADAT to be used as the master clock that drives a MIDI system. The dataSYNC also converts ADAT transport functions into MIDI machine control commands. Cooper also debuted the P-1 Mounting Pan, an addition to the MAGI II automation system that simplifies installation of the system on smaller consoles. A single P-1 can hold up to 32 channels of



What better way to impress your friends than to give them a custom CD. (They might be even more impressed if you gave them this Carver PDR-10 CD recorder.

FOSTEX TO CONTROL

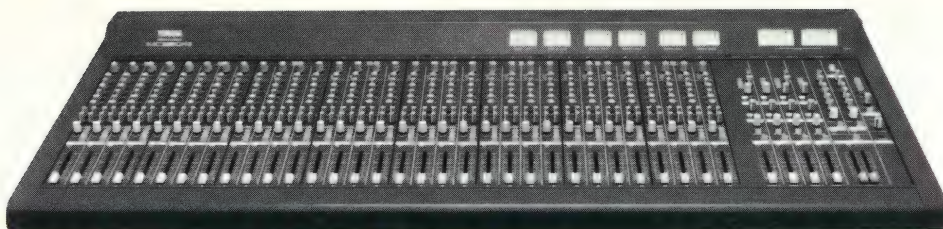
COMPUTER WORLD

(OR THE OTHER WAY AROUND)

Fostex, the venerable recording equipment manufacturer, joined forces with **Atari Computer**, **C-Lab**, **Steinberg/Jones**, and **Dr. T's** to form the Musician's Automated Studio System. Whazzat? In essence, it's a system that allows Fostex tape recorder transport controls (on the R8, G-16, and G-24S models) to be accessed via Atari-based MIDI sequencing software, thus integrating the (lowly analog) tape deck into the (ultimately modern and coolly digital) MIDI studio. [Ed. Note: Keyboard accepts no responsibility for the blatantly libelous par-

enthetical comments that appear throughout this article. They are apparently the result of a software malfunction over which we have no control.] This development allows users to choose whether the start/stop/record/rewind etc. commands will come from the tape deck or the sequencer in a MIDI system, a choice that was previously unavailable.

In related news, Atari announced the formation of Atari Music, a division that will concentrate on developing Atari's presence in the U.S. music market. ■



Yamaha's MC04II series live production consoles are available in 12-, 16-, 24-, and 32-channel configurations.

automation. Also on display was the Mixmaster MIDI controlled mixer, an audio automation system that easily interfaces with any console.

And if running your whole system from a single control device is what you need, then you might want to check out **Roland's** SBX-1000 (\$3,495), which integrates a SMPTE/MIDI event generator, cue sheet, time-code reader/generator, MIDI tempo controller, GPI (General Purpose Interface) triggers, MIDI sequencer, and on and on and on. . . .

Rounding out this year's entries: **Music-Quest's** FrameLock (\$159), a buttonless, switchless box that reads and writes all SMPTE formats, regenerates SMPTE, and has MIDI in and out with remapping, filtering, echoing, and merging. It will not, however, wash your socks. Not even if you ask nicely.

MIXERS (AUDIO, NOT SOCIAL)

When you're a winner, it's only natural that other folks want to share a bit of the glory. And so it is with **Mackie Designs**, whose CR-1604 rack-mount mixer spawned so many imitators that we gave the company our "most cloned" award in last issue's NAMM report. But Mackie isn't exactly sitting around cooling its heels. New at the booth: Full fader automation (with mutes) for the input channels, stereo aux returns, and main outputs of the CR-1604. Priced at under \$700, the upgrade consists of a circuit board that installs inside the 1604's chassis. Automation is via MIDI commands, and includes both snapshot settings of levels and mutes and continuous real-time control of volume levels. Also on display was a model of the company's newest venture, an eight-buss recording console that features in-line monitoring, six assignable stereo aux returns, 100mm faders, sweepable EQ, and stereo solo-in-place. The console will be available in 16-, 24-, and 32-channel configurations (projected prices: \$3,000, \$3,700, and \$4,300 respectively).

Those masters of synth mixers, **Speck Electronics**, were on hand at their first NAMM show ever. We discovered the Speck SSM Synth Supermixer when we used it for our sampler listening tests back in March '89. It wowed us again in July '90 with its brilliant showing in our mixer shootout. Now it's back, and it's been improved. First, the name has been changed to the SSM Synth and Sampler Mixer series. Talk about an improvement! Okay, okay, we'll be nice. The real news is that both the base unit (SSM-24, \$4,975) and the 16-channel expander (SSMEX-32, \$4,195) now come standard with stereo rather than mono inputs. If you need still more inputs, the company is happy to oblige. They introduced the Xtramix (\$3,295), a four rack-space mixer that offers 40 inputs (configured as 20 stereo channels), eight effects sends, eight stereo returns, stereo in-place solo, and eight subgroups. Did we mention that it also boasts the famous Speck "not a misprint" frequency response (6Hz-154kHz)? And for serious power users, there's the new Assign 28 (\$2,590-\$3,050 depending on configuration), an output expander module for SSM-series mixers that allows you to create up to eight discrete mono (four stereo) subgroups in addition to the SSM's own outputs. Its primary use is for combining multiple drum samples or synth patches and bussing them with dedicated effects. And what rack would be complete without the new EQ16, a three-space rack-mount unit that contains 16 three-band fully sweepable equalizers. The unit is available with 16 mono EQs (\$1,495), eight mono

What, you think you just put your ear up real close to synth to hear it? Sorry, but that technology is still a few years off. In the meantime, here's a smattering of new speakers that were on hand at the show.

Altec Lansing: ACS-300 self powered "multi-media" computer speaker system (\$400/pair); 4" woofers, 1/2" dome tweeters, separate subwoofer with two 4" woofers.

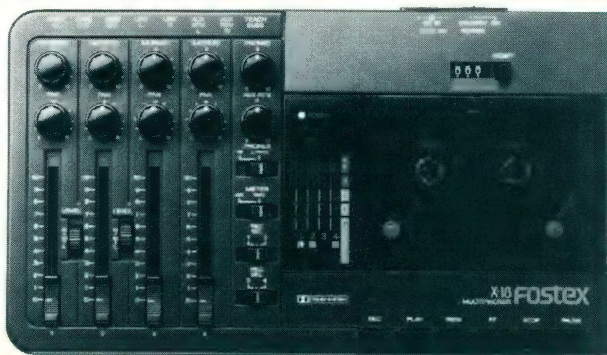
Bag End: ELF low frequency subwoofer enclosures. 18" woofer: \$376; enclosure with two 18" woofers: \$490.

Fostex: SP32 sound reinforcement speakers (\$499); 30cm woofer, square horn tweeter. SPA32 includes 250-watt amplifier (\$899).

Ramsa: 500 series sound reinforcement speakers. WS-A550 (\$650) low-frequency speaker: 12" ported transducer; WS-A500 (\$1,000) mid/high speaker: 12" ported transducer, 44mm compression transducer.

Yamaha: SW1820S subwoofer (\$1,750); two 18" woofers. SW215 subwoofer (\$395); two 15" woofers. SM1525 stage monitor (\$1,495); 15" woofer. S1525S sound reinforcement speaker (\$1,595); 15" woofer with a 3" compression driver.

All powered up and ready to record: the battery-operated Fostex X-18 Multitracker.



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and eight stereo EQs (\$1,875), or 16 stereo EQs (\$2,175). If the top band of the EQ goes to 154kHz, our dog is in *real* trouble.

Now about those folks at **Alesis**. Ya know what they did? They displayed a prototype of a new console, that's what. Dubbed the X-2 Recording Console (projected availability: third quarter '92; projected price: \$5,995), the unit features 24 input channels, 24 in-line tape monitor inputs, eight busses, four-band EQ with two sweepable bands, six aux sends, 16 returns, 100mm faders, and stereo in-place solo. What really makes the console interesting, however, is that it sports three 56-pin connector blocks to accommodate . . . yep, ADAT ins and outs.

Space a problem? Look to **Peavey** for a

solution. Their Six Mix is a single-space rack-mount mixer with six mike/line inputs, a transformer balanced master out, three-band EQ, and phantom power. In a fit of retro-mania, the company also debuted the Valvex, an all-tube, six-channel rack-mount mixer. Also on hand: The RSM 1662, a 16-channel rack-mount mixer with eight low-noise mike preamps on eight mono input channels plus 16 line inputs on eight stereo channels. The unit also offers six aux sends, 60mm faders, stereo solo in place, and phantom power. The prices of all three mixers have yet to be determined.



For major players only: **Tascam's M-700** automated console. (Minor players can have one too, but they'll still have to fork over the \$129K.)

ART, purveyors of fine effects processors, are about to hit the mixer market with their Phantom series. The rack-mount consoles, which are available in 16-, 24-, and 32-channel configurations (prices to be announced), feature XLR input channels, additional line inputs that can be used as dedicated tape returns, three-band EQ with sweepable mid, eight aux sends, four subgroups, and phantom power.

Another new rackmount mixer, the model 2242, was under a glass bubble at the **Samson** booth. Preliminary specs include ten XLR and six 1/4" stereo inputs, four-band EQ, six aux sends, six stereo returns, 60mm faders, and in-place solo. Projected price is \$1,049.

Also for the rack crowd: **DOD's** 1642 (\$1,995), a 16-channel mixer that offers XLR balanced and line inputs, six aux sends, four stereo returns, three-band EQ, 60mm faders, and phantom power. The company also announced the release of the 822 (\$429.95) and

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1222 (\$599.95) compact mixers. The units feature XLR balanced and line inputs, three-band EQ, three aux sends, three aux returns, 60mm faders, and phantom power. And **Roland** has upgraded their popular M-160 line mixer to the M-160MkII (\$1,195). Improvements include increased input sensitivity range and stereo monitor I/Os.

The new WR-S4400 from **Ramsa** is four-buss console that's available in 12-, 16-, and 24-channel configurations (\$1,995, \$2,395, and \$3,195 respectively). The units offer 100mm faders, two selectable inputs per channel, three-band EQ with sweepable mid, four aux sends, and a "D-out" switch, which routes a channel's signal through its aux buss 1 control to its direct out, effectively allowing



The WR-S4400 consoles from Ramsa feature a "D-out" switch, which allows you to use channel direct outs as aux sends.

the creation of up to 15 aux sends on the 12-channel board, 19 on the 16-channel model, and 27 on the 24-input version. Also announced: A programmable mute add-on (\$3,900) for the WR-S852 and WR-S840 consoles.

Tascam unveiled two new keyboard mixers, the MM100 (\$599) and MM200 (\$799). Both models feature eight stereo input channels, four effects sends, and four stereo effects returns. The MM200 also includes BBE circuitry for enhanced high-frequency definition, and a built-in 4 x 8 MIDI patchbay. The M108 (\$799) is a 12-input, four-buss recording mixer with eight tape returns and two-band EQ. The M1508 (\$1,149), a rack-mount eight plus

eight input mixer, and M1516 (\$1,849) table-top 16 plus 16 input mixer, both feature dual audio outputs, assignable direct outputs, four subgroups, three-band EQ with sweepable mid, and four aux sends. The company also announced that their flagship M700 console is now available with moving fader automation. With automation installed, a 40-channel M700 will only set you back \$129,999. The automation alone runs \$50,000, in case you'd like to add it to your existing console.

On hand at the **Forex** booth: the model 2412 (\$7,995), a 24 x 12 x 2 recording console that can support two simultaneous mixes. The mixes can be combined to offer 60 inputs. Other features include programmable mutes,

Continued on page 145

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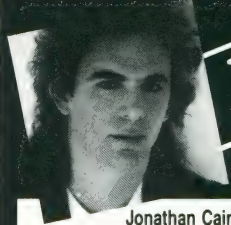
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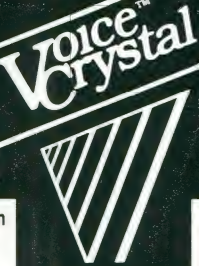
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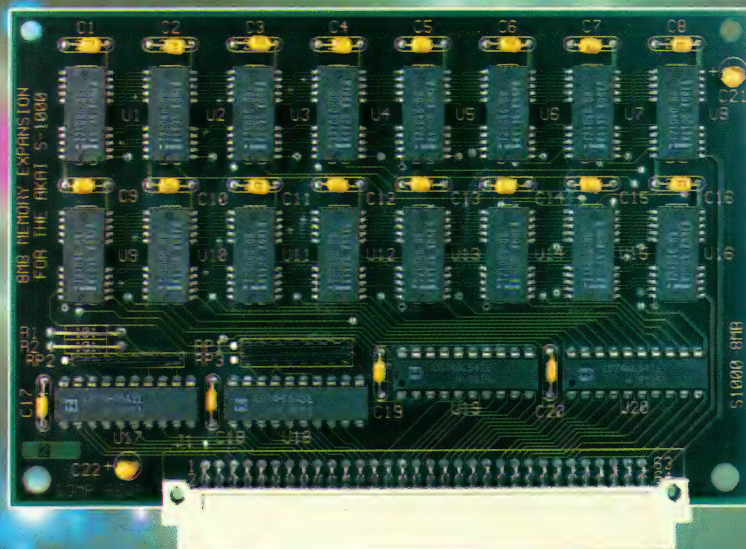


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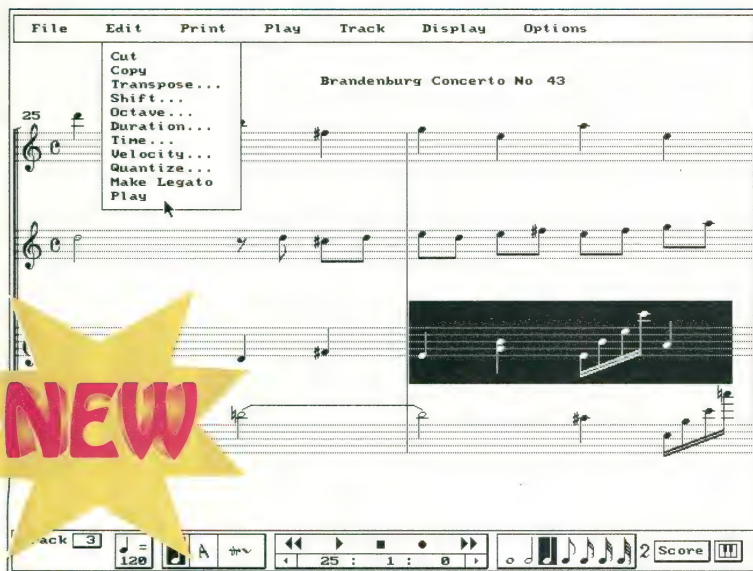
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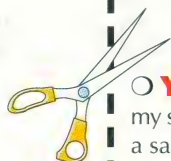
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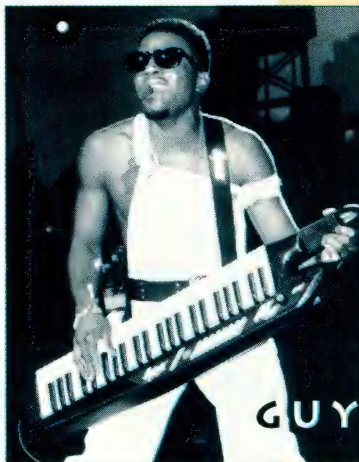
Photograph by Todd Gray

New Jack Swing

WHITNEY HOUSTON

Michael Jackson

Bobby Brown



KEITH SWEAT

he feel is street, but the neighborhood is parking lot.

We're not far from the frat bars whose lights illuminate the gloom off of Virginia Beach, and just a stone's throw from the kind of shopping mall we've all learned to tolerate. Places close early in this part of the country. Storefronts are dark and still. But here, in a smallish office cube hidden off of the main drag, a glow emanates from behind locked glass doors. And music — mosquito-swat snares, skipping hi-hats, the throb of new jack swing — starts, stops, picks up again, beat by beat, part by

BY ROBERT L. DOERSCHUK

Dangerous

TEDDY RILEY



IT'S LIKE
BEING A
SCIENTIST:
YOU HAVE
TO FIND
THE RIGHT
METHOD
FOR SOLV-
ING A
PROBLEM.
THAT'S
WHAT PRO-
DUCERS DO.

part, slowly piecing together yet another sure-hit record stamped with the name Teddy Riley.

This is The Future Enterprise, a combination office, multi-room recording center, and living quarters for Riley. Born in Harlem, the 25-year-old producer, performer, and fledgling business executive makes this improbable facility his home base. With nothing but chain store outlets around him, Riley has created a space and built an operation attuned to his creative whims. Black wall patterns and thick black carpeting create the muted ambience inside. Brighter colors animate his studio, but in his private room the black motif amplifies, with stereo gear tucked into black shelves, a formidable glass-top desk on four thick black pylons, and a vast black leather couch that faces a TV screen big enough to accommodate the dinky theaters at the nearby mall.

"I do business here from maybe one to three or four o'clock in the afternoon — just like I'm doing now," says Riley. He's stretched out in his couch, barefoot, oblivious to the *Mr. Ed* episode galloping across his screen and the ringing from one of the three phones on the glass table before him. "I won't get

started with my musical projects until six o'clock at the latest. But I'll stay with that until five or six in the morning. Then I'll sleep until I wake up, and I usually wake up when another musical idea pops into my head."

Riley speaks in the kind of high-pitched whisper that seems to be fashionable in some African-American musical circles. Like Michael Jackson, El De Barge, and Babyface, Riley isn't known for his bellowing. Instead, his voice is delicate, as if all-night mixing and jamming have left him drained until his next session here or his next flight to L.A. for a spell of furious recording with some R&B or rap trend-setter.

Whether by design or by nature, Riley's ephemerality only draws attention to his solid presence in pop music. Over the past five years, his style — a tight, jazz-inflected variation on hip-hop — has galvanized pop music. His sound seduced Jackson away from his long-time and lucrative association with Quincy Jones, and prompted Barbra Streisand to suggest a collaboration. Other producers have made similar waves — Jones with *Thriller*, Jimmy Jam and Terry Lewis with Janet Jackson, L.A. Reid and Babyface with Paula Abdul. All have, to one extent or an-

other, created sounds of their own. But only Riley has gone the next step and come up with a *label* for his sound. This, in a culture where packaging can be more crucial even than substance, was the master stroke, the brilliant touch that put his name on the lips of dance music superstars and his sound all over today's playlists.

The label, of course, is new jack swing. Three words in one capsule, fashioned to slip smoothly down the media's throat — *snap*, *crackle*, *pop* for the '90s. It's the hook of the season, the *je ne sais quoi* that everyone wants in their rhythm tracks. And everybody knows that Riley invented, patented, and unleashed the style in '87 on two epochal albums — *Make It Last Forever*, Keith Sweat's breakthrough effort, and the eponymous debut recording of Riley's own band, Guy.

Just how revolutionary is new jack swing? From the long view, the changes wrought by Riley add up to a mere bump on the back of R&B. Like everybody doing dance music these days, he almost always builds on the backbeat. Once the metronome starts slammin' the two and four, he adds sweetening — bass drum thumps, double-time hi-hat, and other details that wouldn't have seemed strange on old Van McCoy or TSOP records. Of course, it's all done with a crisp touch that many producers far beyond Riley's years can't manage. There's a lot of treble, not much reverb. When played through a battle-ready stereo system from a car adjacent to yours at a red light, classic rap assaults your guts with its maxed-out, sloppy bass. Under similar circumstances, new jack swing goes for *your* feet and your brain. It's as tidy as it is tight.

So what if it differs from other dance styles only in nuance? Details can make all the difference. Check out Riley's arrangements on Michael Jackson's *Dangerous*. By keeping the beat straight-ahead, giving the snare extra pop, and leaving the bass out on "Why You Wanna Trip On Me," he brings Jackson's vocals out more than Quincy Jones did on some earlier cuts, and gives more exposure to the dotted eighth-note hi-hat pattern that essentially defines new jack swing. Though unmistakably a Michael Jackson performance, the uncluttered texture is also a Riley trademark, and thus passes this year's trendiness test.

Riley was between sessions for the new Bobby Brown album when we met him at The Future Enterprise headquarters. He invited us into his inner sanctum, a honeycomb of studios, guest and private suites, a work space for his staff technician. An amazing amount of gear overflows from room to room; a benevolent wraith, Riley drifts past rack after rack, gesturing at his favorite axes and accessories. "Our speakers were made by George Augspurger," he says with an affec-

tionate glance at his monitors. "Everybody thinks Genelec is the best. Bobby Brown has Genelecs in his studio. But" — a knowing smile — "they can't stand up to these."

Not too long ago, Riley was one of a crowd of hopeful musicians in New York, jostling through music stores and staring at gear he could only dream of buying. Now he's got it all — all the equipment, a company of his own, a private phone reserved for family and selected clients. (During our visit, Pepa of Salt-n-Pepa called to ask how she should spell her own name. Bemused, he replied, "You can spell it any way you want.") It's a powerful wave that Riley rides, one that seems at first glance to have sapped him of the strength that's evident in his music. In fact, he is more balanced than burned out. With all of his obligations to his 13-member staff, to the artists clamoring for his time, to the suits demanding his signature on their budget projections, Riley has learned to pace himself. As we left the premises, we watched him disappear back into his studio for another long night of work. Outside, darkness enveloped concrete America; inside The Future Enterprise, the lights burned nonstop until dawn.

~ ~ ~ ~



s we speak, you're deep into the upcoming Bobby Brown album. On one cut, you've got Bobby dueting with Whitney Houston.

How did that come about?

That was my idea.

Did Bobby ask you to line her up for the album?

Not really. They're very good friends, so he also called her himself. But he had to wait a while to think about whether it would be a good idea before he actually said, "I want you to do a song with me." One day she happened to call the studio. She was talking to one of my engineers, who then put Bobby on the phone. He said to her, "We're working on a song, and we're thinking that you should sing it." She said, "Let me hear it over the phone." She listened, and she loved it. So I waited on that one until she could do a rough [vocal]. Now we're gonna get the main vocals down.

In preparing to record her, did you listen to how other producers worked with her to develop any insights?

No. I wanted to push Whitney Houston my way. Everybody has used her in every way, but I wanted to use her in the new jack swing way. So much of her stuff is so wide and clean; I wanted to use her the street way. Her voice will still be warm — not too dry. I'll have a little reverb, but you'll hear her. She'll be up front.

New Jack Swing

BREAKING IT DOWN



ust what is new jack swing, anyway? Good luck finding a definitive answer. Even the man himself, Teddy Riley, doesn't have a precise explanation. So we phoned up one of the West Coast's hottest drummers to learn more about new jack's inner workings.

Meet San Francisco's deadly groove weapon, Brain, of the Limbomaniacs. (Brain is currently in the studio with Bernie Worrell, Bootsy Collins, and new guitar sensation Buckethead). "I first caught the new jack vibe when I heard Teddy's band Guy in '88," Brain says. "Teddy's drum patterns had a definite character that set them apart from other hip-hop, house, and go-go things. The key ingredients are swingin' sixteenth-note triplets, a tight snare drum sample, a triangle, and a funky kick drum. On the faster grooves, Teddy usually programs a very straight and sparse bass drum pattern — on the one and three, for instance — and he'll often add a swung sixteenth pickup to each. The snare drum usually spans the two and four, and then the top stuff (hi-hat, triangle, tambourine, or shaker) will hint further at the swing feel with an occasional swung sixteenth-note."

Brain suggests looking at Teddy's re-mix of the Jane Child hit "Don't Wanna Fall in Love" as a good example of this. Compare the original groove (Figure 1) with Teddy's new jack version (Figure 2).

Figure 1.



Figure 2.

swing sixteenths



For an in-depth analysis of hip-hop, house, go-go, rap, and new jack patterns, tune in to our July '92 issue for a full Master Class with Brain. See you then!

—Greg Rule

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TEDDY RILEY

How did the quality of her and Bobby's voices affect your approach to arranging that cut?

The song that they're singing is classic to me, so I want to put real instruments on there — strings and stuff that would complement them. I played some of the parts myself. I have a lot of Fairlight string sounds that I use if I can't get the string section sound that I want. It's hard to get the people you need to do what you need them to do, as far as the rhythm and the type of tune I want to do. They may not be able to lock in. But I'm setting up to record some real string players anyway. I want to try to arrange it all myself from the computer and print out all their parts.

Do real string players still give you a quality that you can't get from samples?

I wouldn't say that. I have the sounds of life in my machines [laughs].

So why have real strings?

It was my idea to run with that and get some publicity on it. I like doing things where you can draw good publicity, like using real strings or playing guitar on Michael Jackson's stuff. I don't play guitar, really. I can do funky strums, but no solos.

What was your source for string sounds on Dangerous?

Well, on "In the Closet" the beginning is real violins, cellos, violas, and basses in a computer.

Those particular string parts follow the piano line pretty closely. Were they triggered from a MID'd piano?

They were done separately. I played the piano in real time, so we had to feel it out. I kept the first take that I did because it's real. That's how they would do it with a symphony orchestra, so the timing is real.

Were you playing a real piano?

It was a Bösendorfer. On top of it I had a layer of one soft sustained string playing at the same time. All the other stuff was recorded separately behind it.

So when you want a real piano, you go for a real piano.

Oh, yeah. I got one at home, a Yamaha Disclavier baby grand that my brother bought me for Christmas.

Is the Fairlight your main source for string sounds?

I don't usually tell anyone what I use, but

the strings that I did for Michael were from the Fairlight and the [New England Digital] Synclavier. Sometimes you can get the best string parts from the smaller keyboards — something like the [E-mu] Proteus/1 and 2, or the [Ensoniq] VFX. I have a lot of keyboards in my room that give me all the sounds I need. You just have to go through 'em to know what they can do. That's why I sleep here at the studio; I go through all my sounds. I had an Akai MPC-60 the first day it came out. I ordered the first one that came in to Sam Ash on 48th Street in New York.

So even before you hit the big time, you were being aggressive about getting what you wanted.

Yeah, I am very aggressive when I want equipment. Anything that's new, I like to get it before anyone. My keyboard tech, Julian Jackson, gives me the rundown on every new thing that's out. He always calls me: "You know this new thing? The [Roland] RSS?" "Yeah, man. I used that on a remix of 'D-O-G Me Out' [from *The Future*, by Guy]. I love it!" He tells me about everything that comes out even before he gets it.

What was your first synth?

Well, my very first keyboard was a [Hohner] Clavinet. Then I had a 73-key Rhodes. After that, I bought an [Roland] S-10. Then I bought a D-50. I was using an Alesis drum machine then too. "My Prerogative" [from Bobby Brown's *Dance! . . . Ya Know It!*] was done on the Alesis and a little eight-track.

You had limited options with that kind of gear.

Yeah, but I was trying to do everything. I was playing pads on the Clavinet. I'd do the chops too, but that would be on another track. That was the only keyboard I had at one time, so I had to utilize what it could do. I did have the little floor model Boss chorus, which could make the Clavinet stereo. I didn't have the money in those days to buy whatever I wanted. But every time I bought a new keyboard, I made new songs because there were more sounds that I could spread around. As I got more things, more new songs came to my head.

Was the piano your first instrument?

Yeah, and organ. I played 'em in church.

Are you self-taught?

I took lessons for about one year from

Thurman Thompson, and I took lessons with another teacher, a lady. It showed me that some of the stuff I was studying I already knew. I'm no great, fast, fantastic piano player, but as far as my chops go, I can do anything I want to do. The piano is my love. It's something I live for. Guitar was actually the instrument I started on, when I was three years old. I used to study Jimmy Reed, B. B. King, and those blues guys back around '69. Then I got into the Parliament/Funkadelic stuff that came out later. So it was one or the other: blues or funk. I went into funk, so I said, "I don't want to play guitar, man. With the guitar, you have to move your hands and play a lot of stuff; you have to strum while you play at the same time with your left hand. I want to play drums." So I played drums. I used to play drums for the bands in my elementary school and my junior high school. I was the top drummer, and I read music for drums. I used to play trumpet with the band too. But then I said, "I don't want to play trumpet anymore. This is an instrument that would hurt my mouth, and I be looking funny." And drums hurt my hand; I have calluses now because I still play drums. When I do all my sounds with my sound man, I'm hitting that drum hard; I create blisters every time. By this time, I wanted something that I could play all my life, so I wound up with the piano because that's something you can do when you're old. That's what I'm gonna be doing. I see myself, say, 20 or 25 years from now, maybe doing a piano record of my own music.

How is your reading?

I haven't read music in so long, since I started doing this street kind of stuff. But I'm gonna get back into it, because my daughter is taking piano lessons and I don't want her to beat me out: "Daddy, *this* is the way you do it." I want to know how to do it right, so I can show her. She's three years old, and she's trying to do the scales with these small fingers. Wow!

So you want your daughter to be a player.

That's right. If she wants to get into programming music on computers later on in life, that's fine. But I want her to be a player first. I don't want her to make the mistakes I made. I was thinking computers when computers weren't even out. I do play, but I was always trying to get around it and not play too much. I wanted to put my music in a computer that could play it back to me, instead of having to go over the parts all the time in the studio. Some people may think I'm a slouch or not good at playing piano, but I try to be as good as I can at it.

What was your first public performance?

That was at the age of seven in church. Actually, we were doing music in the street when I was five years old. I was on 121st

Street between Lexington and Third Avenue with some of my father's friends. We had little Fender amps, and we played outside. People loved it.

Do you write at the piano?

Yeah, mostly. Then I put it all in the computer. That way, if I do the Michael Jackson tour and he wants all the sheet music for what we did, I have it later on down the line. It's good that I documented everything. I document everything that I record, from the time the song starts all the way to the end — the tempo, every part that's played, every program on every keyboard. You never know when you're going to want to come back up with the song. Suppose somebody asks you to do a song like something you did before? You're gonna want to go back to your sources and say, "What did I use on this song for the strings? For the horns?"

Do you think of each instrument as having its own specific function?

Yeah. It's like going to a restaurant. If you go someplace that specializes in Italian food, you want Italian food. So when you buy a keyboard, you look for certain things that it does well. I like the stuff that E-mu did with strings in the Proteus/2. They specialize in strings. Roland, of course, specializes in everything. They're really good.

Do you still play the D-50?

Yes, I do. I have six or seven D-50s, five or six D-70s, four or five JD-800s. I also used the [E-mu] Emulator Three when it first came out — that long, big keyboard that gave everybody problems. But I liked the first Emulator.

More than the later models?

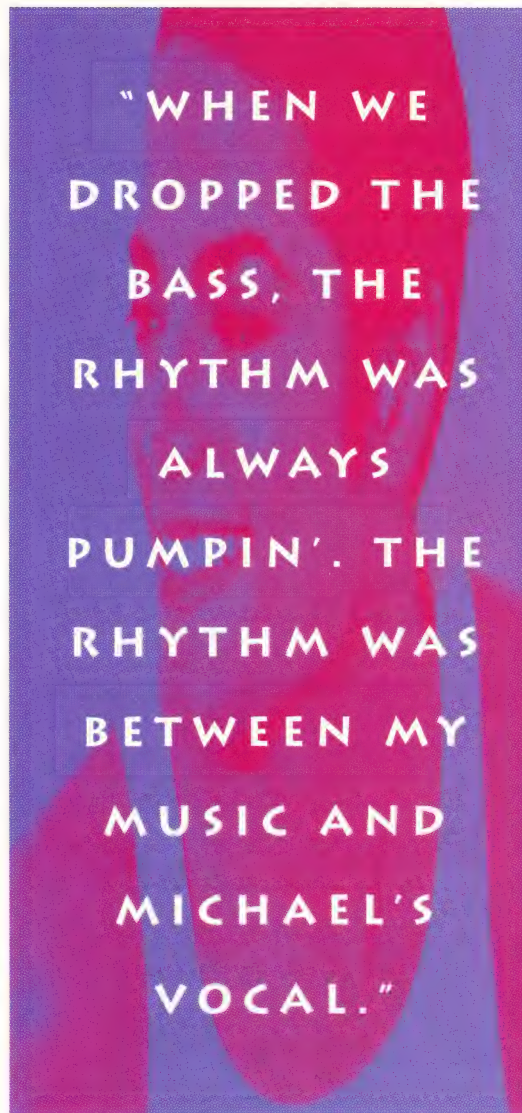
Yeah, because the EIII was too complicated.

Did you stock up on much Yamaha gear?

No, except back when they had the DX7. I used the DX7 on some of Keith Sweat's stuff, because it gave me the whole catalog of sounds that I needed.

You've also used the Synclavier and the Fairlight, especially on ballads.

They're both too clean, too polished and pop, for me. When I want a song to have street appeal, I wouldn't use a Synclavier unless I could put something pretty in there. But for ballads, they're both great. I used the Fairlight on Kool Moe Dee's rap project, *How Ya Like Me Now*. It was pretty rich on that one, with a lot of fat sounds, even though we got fat sounds and bottom out of little drum machines and the stuff we had for the Heavy D projects. With the Fairlight, every-



thing is right in front of you. It's just, "Gimme this sound. Gimme that sound."

What instrument do you like to use as your MIDI controller?

The D-70. It has so much control right there. You can change all the presets so easily. Plus it has more keys than most keyboards, like the [Korg] M1. I used to use the M1 as a controller. I also used the JD-800 for about a week, but then I went back to the D-70 because it had a lot to offer.

Do you use the D-70 strictly as a controller, with local off?

Sometimes, but I also use the internal sounds. I'll bring up five or six sounds at the same time.

You're often seen in photos with a strap-on Lync controller.

I love to play the Lync on live gigs. I run it through a vocoder.

You seem to use completely different sets of instruments for your slow and your faster tunes.

Not really, but as I create a ballad I go into a different mode. I change all my sounds. I don't like using the same sound twice on an album. My floor plan is to make the whole carpet colorful.

But you also go for a certain kind of unity. Your snare sounds throughout Dangerous differ from cut to cut, yet there are similarities as well.

Yeah. They're all hot. My engineer and I always have our drums poppin'. We used a variety of drum machines, but we compressed all our snares to make 'em pop.

You reverse-gated the snare on "She Drives Me Wild" in a way that nicely anticipates and sets up the actual backbeat hits.

There are lots of elements on that song. In fact, the whole percussion track is motor sounds: trucks, cars starting, cars screeching, motorcycles idling, motorcycles revving, car horns. Even the bass is a car horn.

Where did you get those samples?
I made them myself.

You just took a DAT machine out to the parking lot?

We usually do that. We even sampled Michael's tiger. We got tiger sounds, lion sounds, monkey sounds.

What about your regular drum sounds?

We sample most of our drums. If not, we work on and edit the drum sounds in our machines so they don't sound like stock sounds.

One of your most noticeable arrangement techniques on that album involves frequently leaving the bass out. In those sections of "Jam," "Why You Wanna Trip On Me," "In the Closet," and other titles from Dangerous, did you ever consider not taking out the bass line?

No, we didn't. We always just did it the way we felt. When we dropped the bass, the rhythm was always pumpin'. The rhythm was between my music and Michael's vocal. As long as we were hittin', if we didn't have to use the bass, we didn't use it. A lot of people think that having a lot of music is the key to putting an arrangement together. But we don't just add music or instruments just to be adding. It's more about what you feel in the music, what you think is happening. Anything can go, as long as it's hip or street.

When you do have a bass part, it often has a strong analog feel, as on "Remember the Time."

For me, that song was true R&B. I didn't put hip-hop into it until the remix. For that,

TEDDY RILEY

I used a real upright jazz bass on a hip-hop beat. I really like that one. I also changed the organ part on the remix and did it with my voice through a vocoder.

Some of Michael's early work with Quincy Jones was much more fully orchestrated. Were you consciously deciding to go in an opposite direction in your collaboration?

As far as my production, yeah. I didn't want to go the same way Quincy went, but I also didn't want to leave his style. So I took a little bit of each. I had my style and his style in my head, and I put them together.

What is there on Dangerous that reflects Michael's earlier style? On "She Drives Me Wild," for example, there seem to be some chordal echoes of "Thriller."

Well, that's what he wanted. He said, "You know what I'd like to have overlaid to new jack swing? I'd still like to have my strings. I want the strings to be really wide." So that's what we did, even on "Dangerous."

They're wide, but they're not overwhelming.

I know. They're part of the flavor. We liked the strings so much that we tried to turn them up as loud as we could get them. But we turned them back down when they started dominating the other tracks.

Michael also seems to be referring to "Billie Jean" in his falsetto vocals on "Dangerous."

"Dangerous" had already been recorded by Bill Bottrell [co-producer of four cuts on Dangerous], but the music didn't move Michael. I told Michael, "I like Billy. I like his producing, and everything about him. But this is your album, Michael. If this is the right tune, I can utilize what you have in your singing. Let me change that whole bottom and put a new floor in there." He said, "Try it. I guess we gotta use what we love." And we did. I'm quite sure that if anyone else had come up with a better "Dangerous," he would have used that. So it's not actually about me or Billy; it's about the music. I always say that the music is the star.

Was there an element of having to follow in the formidable footsteps of Quincy Jones on this project?

Well, that's my plan. I want to be like Quincy Jones. I've always looked up to him, more than to any other producer out there. He's the one. Like Quincy, I just can't stay

in one category. I'll do any kind of music. It's like being a scientist: You have to find the right method for solving a problem or curing a disease. That's what producers do. When you're working with someone, you've got to find the right style, the right sound, for them. You have to draw a circle around each artist and make them fit into that circle.

How much of your work on Dangerous was based not just on finding a sound that works, but on finding a sound that contrasts with the one that Michael and Quincy developed?

Almost all of it.

So if you came up with something that sounded a bit too much like Thriller, for example, that was reason enough to abandon that approach and search for something different.

Yes. We didn't want to sound like another Thriller. We wanted to top it, even though that's impossible. I guess some people are saying that Dangerous is better than Thriller or Bad. But I won't say it's better until it sells as much as those albums. If Dangerous doesn't sell more than Bad, even with the recession that we're having, then I don't feel that it's better.

Do sales really have that much impact on how you feel about the quality of your

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MIDI MUSIC WITH THE HUMAN TOUCH

TEDDY RILEY

work as a producer?

In a way they do. I don't want to say that sales have an impact all the way about how I feel. I don't check up on how many copies are selling. I just think that if it sells that much, it's a great album. Everybody tells me it's a great album, that they love what I'm doing with Michael. I like that; that's cool. But I don't have an ego about it. I just say thank

you and be on my way.

You play keyboards on all of the cuts that you produce on Dangerous. But a number of players in addition to you are also credited as keyboardists on the opening song, "Jam."

Well, "Jam" was brought to me as just a drum beat. Rene Moore and Bruce Swedien came up with the idea and gave it to Michael as a beat, so you can't take that credit away from them. But it was just a stripped tune until Michael did his vocals and I came in with the icing. I actually added most of the keyboard parts, all of the percussion elements, all of the horn parts, and all of the guitar parts to make the tune what it is today.

How did you formulate the idea of new jack swing? Did you used to play more straight-ahead hip-hop grooves?

As a kid, I was playing gospel, funk, hip-hop, R&B, and pop grooves. We couldn't call it all of those things, so we came up with one name for it all — new jack swing. In reality, it's all types of music.

Does jazz also factor into the new jack swing concept?

Modern jazz does. There used to be modern jazz festivals during Harlem Day every summer. It was like Mardi Gras in New York, and a lot of musicians would come out and play — Chick Corea and those kinds of guys.

That influence is reflected in the dotted eighth-note patterns you generally lay down for your hi-hat parts.

Yeah.

So is the hi-hat part the element that distinguishes this style?

It's in every element of the percussion. I can do some things with the hi-hat that will make a song stand out. I can do some things with the bass drum that will make the song stand out too. I don't just rely on one instrument. Lots of people try to do what I do, but they don't know how to do it. Everybody is trying to catch on to my technique.

A lot of it seems to boil down to common sense. When you change the snare timbre slightly going into a new section of a song, it's usually for a good musical reason.

You could say that.

The snare sound on the Guy ballad "Let's Chill," for example, becomes more authentic when the vocals begin.

That song starts with a high conga sound that's actually a high-pitched [Roland TR-] 808 snare. I use that on most of my ballads because it's a nice cross between a conga and a snare. It's really small on the track because everything around it is wide. The snare I added was a real snare, high-pitched. I also made some 808 sounds of my own — warm sounds and funky sounds. That was one of my first drum machines. But I didn't think it was nothin' then, so I sold it.


Did you use the 808 to get that big boomy rap-style bass drum sound?


Oh, yeah. That long bass. But I don't do that anymore, because I wanted to make a change. You gotta change. If you don't, somebody will beat you to it. You gotta be on key as far as style, but at the same time you want to be at least one or two steps ahead of everybody else.

The drum part on "Let's Chill" also feels like something a real drummer would play.

Yeah. It's like "Long Gone," a slow song that I sang on the same album. It has Phil Collins-type drums. I was trying to use real drum fills on that. I think it came out good.

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TEDDY RILEY

Do authentic drum patterns work better on ballads than on up tunes?

Yeah. On up-tempo tunes, anything goes.

Like most dance music, your up-tempo songs emphasize a strong backbeat. But not always: "Jam" has a more complex snare part.

That's new jack swing. You can do anything with the snare in new jack swing. You just have to change the pitch to take it somewhere else. If you keep one straight snare, you can put breathing on it. [Riley articulates rhythmic breathing around a steady beat.] That gives the snare more rhythm and actually brings the snare out. Sometimes you don't realize that you're doing that kind of stuff until it happens, and then somebody else notices. That happens a lot with me. I don't really notice that what I'm doing is unique, because it's natural to me.

What sequencer do you use for your drum tracks?

The MPC-60. Now that they have the SCSI port for it, we can use the hard drive to load up sounds. I play a lot of live stuff into it. I like to do all my percussion live and in real time, using sounds that I made and put into the Akai so it will come out the way I want it to swing.

Do you also use a software sequencer?

I use [Mark of the Unicorn] Performer when we go on tour. It's the best program because the Mac holds so much. For the last Guy tour, we ran [Opcode's] Studio Vision, even though it drives a lot of people nuts. I still get calls from people who want to find out how to do this and that with it. There's so much stuff you need to make Studio Vision work the way you want it to work, where you can just pick up an instrument and it comes in on the right MIDI channel. But for me, it's easy.

Why didn't you take Performer out on the last tour?

Because I wanted to record a live album with Studio Vision and [Digidesign's] Sound Tools. But we didn't get a chance to do that. We stopped the tour when our show was at Madison Square Garden. We were supposed to have more shows after that, but that was our last one. I was just too busy with other things to keep going.

Do you sample a lot off of records?

I try not to. It's really becoming a hectic thing for artists, especially for rap artists, because they're afraid of getting sued. I don't want that to happen to me.

What about sampling an individual drum hit from a record?

Power Trio



Vision

Opcode's Vision and Studio Vision® are the premier sequencers for the Macintosh computer, and are used by professionals on today's top albums, film scores, and TV commercials.

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Studios everywhere use and depend on the standard of Opcode patch librarian and editing software. For the first time anywhere, Galaxy Plus Editors offers an integrated package of universal librarian with compatibility for over 140 synths, effects, mixers, modules and *comprehensive* editors for over 50 of them—and we're always adding new ones. Galaxy—The Universal Librarian is also available. Version 1.2 adds a Find command for databasing and searching sounds, plus the Yamaha SY77/TG77 editor.

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TEDDY RILEY

I don't do that either, because it's not strong enough. I can't take something from a song that's not strong enough for me to put on a record, that isn't clean enough for me to hit hard onto tape.

So it's a combination of practicality and legal safety.

Well, it's not about being legally safe. It's more about being creatively safe. It's about the difference between taking a sound from a CD and having the real thing. I like to hit things hard. My snare drums have to hit hard. If I did that with a sample from a record, it would come out distorted.

Running a business like The Future Enterprise is such a different process from playing music. Why move into something that's so far outside the range of activities you've enjoyed throughout your life?

You want to do it all. You want to grab up there for what you don't have. You want to go for everything.

How did you decide to put your own business together, instead of just working as a producer for hire?

I didn't look for it. If you look for something, it never comes. This deal came to me. I wasn't even prepared for it. Someone from MCA called my lawyers and said, "We're ready to do a deal with Teddy Riley." "What kind of deal?" "We want to give Teddy Riley his own label." At this moment, I still don't know to the fullest what to do. I only know what to do musically. As far as strategies for promoting records and staying on top of who's gonna do what, I don't know. I just hope MCA is behind me on it. I'm still looking for a president for my company — someone who has the ability and experience with promotion, artistic development, and knowing the music industry, so I don't have to answer for all that. My thing is being creative. I don't want to get into the business aspect, because if my records don't sell I can't make any more records.

Your outside projects forced you to bow out of your own band's last tour. Now you seem to be worried that you might be overbooking yourself with the business side of your career.

[Whispers:] That's right.

With all these pressures, with so much of your work cocooning you here in this facility, are you in danger of being too isolated to do real-life music?

No. I never let anybody keep me in. I'm always gonna hang out and do what I need to do to stay on the street vibe.

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THE INSIDE STORY

MIDI PIANOS

BY MARK VAIL

KEYBOARD EXAMINES THREE
DIFFERENT APPROACHES TO
THE UNION OF ACOUSTIC AND
ELECTRONIC TECHNOLOGY

How do you impress a roomful of hardboiled, MIDled-out-the-ears, it-has-to-be-state-of-the-art-or-I'm-not-interested *Keyboard* staffers? Simple: Show them a grand piano that sends MIDI. Or, better yet, one that *responds* to MIDI. That's all it takes.

A piano that sends MIDI? What better MIDI controller could there be? . . . with some qualifications: Provided it doesn't have to go anywhere; it has to stay in the same room forever and always. And the room has to be quiet and soundproofed, so the kids get their sleep. And a fireplace — the room has to have a fireplace, because no music room is complete without a piano and a fireplace.

Okay, so a piano that sends MIDI might be the ultimate controller for some people, but not everybody. Let's turn it around the other way: Have you found a digital piano or sound module that provides a convincing — and we mean thoroughly convincing, even when soloed — piano simulation? Probably not, because nobody has created a perfect replica of the grand piano, or

PHOTOGRAPH: PAUL HAGGARD



God didn't intend for anyone to put electronics and solenoids in a piano, but Yamaha did it in their Disklavier grand piano. How else could you get the likes of Dick Hyman, George Shearing, Patrice Rushen, Roger Williams, and Liberace to play in your living room?

MIDI PIANOS

even an upright. So what could be better than a real piano with a MIDI in, so that you can pump notes and pedal commands into it and have the piano play along?

Perhaps you remember the August '88 *Keyboard*, our special piano issue. In it appeared an article about MIDI retrofits for piano. Back then, the big-time developer of MIDI retrofits was a company called Forte Music. (You'll find a review of the Forte MIDI modification for pianos in the February '86 *Keyboard*.) Among the very few factory-built MIDI pianos mentioned in that article was the Kawai KG-2D, a 5'10" grand with MIDI.

There was also a brief discussion of the Yamaha MIDI Grand and the Disklavier.

While the former is a 6' or 7'4" grand piano that comes direct from the factory with an optical key-scanning system for generating MIDI data, the latter is the way-cool player or "reproducing" piano — either grand or upright — that you may have seen in shopping malls and hotel lobbies. It looks like a normal piano, and it plays like one too. But the Disklavier isn't like most other pianos: Not only does it transmit MIDI data, it also responds to MIDI coming from somewhere else.

In some ways, not a lot has changed since August '88. Yamaha still makes the Disklavier — which they claim makes up 25% of their acoustic piano sales — and the MIDI Grand, and the Kawai MIDI piano is still available too. Alas, Forte Music is no longer doing business. Thankfully, though, long-time piano and organ manufacturer Gulbransen grabbed the torch, and for several years now has been offering MIDI retrofits for a variety of pianos, including the venerable Rhodes 73-note electric piano. (Don't give up on that old darling yet!)

Although we've written about these pianos and retrofits in the past, we never before had the opportunity to put them under the microscope here at the *Keyboard* labs. Why? Mainly because of the logistical problems. Specifically, in the case of Gulbransen, we needed to come up with a piano in which to install the MIDI retrofit. Beyond that, there was this rather important detail of finding a place to set up several acoustic pianos. Luckily, we were able to secure our first-floor conference room (site of the April '91 digital piano shootout) for a few weeks — no fireplace and a noisy air-conditioning system, but we survived.

Gulbransen's Reid Baer convinced the local Sherman Clay dealership to lend us a stock Kohler & Campbell upright. We arranged to get this piano four days before Gulbransen sent their technician to install their MIDI sensor system, so that we had the opportunity to play the virgin piano and could later judge whether the retrofit in any way altered the feel of the Kohler & Campbell's keyboard action. (It didn't.)

Meanwhile, we asked Yamaha for a Disklavier. They wanted us to take a grand rather than an upright, because of the former's advanced MIDI capabilities (specifically, the grand's damper pedal has more resolution in recording and reproducing movements). It was a tough decision, but we agreed after a little arm-twisting. Courtesy of the Yamaha Peninsula Music Center of San Jose, a 6' Disklavier arrived on the same day the Kohler & Campbell became initiated into the marvelous and confusing world of MIDI.

Two days after we got the Disklavier, the piano movers for Carnes Piano rolled a factory-MIDIed KG-2 into our newly converted piano studio. Now we were set . . . or were we?

If this were to be a strict shootout of MIDI pianos, we weren't. To be fair, we would have also needed Yamaha's own MIDI Grand, which better matches the intentions of the Kawai and Gulbransen products than the Disklavier.

Likewise, there are some competitors to the Disklavier itself. One is the Bösendorfer 290 SE, an IBM-PC-based reproducing piano developed by musician/engineer Wayne Stahnke. (See Bob Moog's description of a 290 SE performance in *World View*, Sept. '88. Also check out the Ask Mr. Moog column in the Oct. '88 *Keyboard*, where Moog investigates the resurgence of player pianos.) According to Moog, the Disklavier's reproducing mechanism bears some resemblance to Stahnke's designs; however, where the Disklavier is MIDI-friendly, the Bösendorfer SE isn't yet to our knowledge. In any case,



Takin' it to the streets with the Kawai KG-2 Parlor Grand. Although this wasn't a piano shootout, we should report that most of those who played both the Yamaha Disklavier grand piano and our KG-2 preferred the sound of the latter because of its brightness. (Kawai KG-2 grand piano with MIDI provided by Carnes Piano, Palo Alto, CA.)

KAWAI KG-2 WITH MIDI

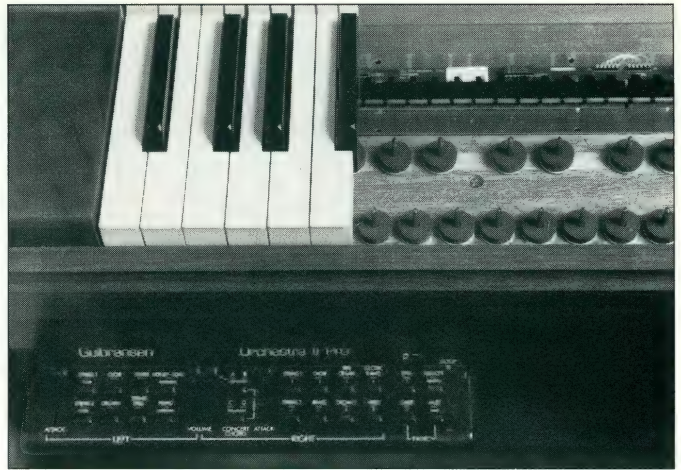
Suggested Retail Price: \$16,841.00.

Features: KMC-12P MIDI controller box offers MIDI out and 1/4" footswitch input (MIDI out on/off), proprietary DC power input, power switch. Selectable MIDI out channel (1 to 16), three velocity-response curves, sustain transmission (controller 64).

Contact: Kawai, 2055 East University Dr., Compton, CA 90220. (310) 631-1771. Fax (310) 604-6913.



A look at the partially disassembled Kohler & Campbell upright piano. The Gulbransen SS88 sensor strip has already been installed beneath the keyboard, and now the rest of the keys are ready to be replaced. (Kohler & Campbell courtesy of Sherman Clay, San Bruno, CA.)



A closeup of the Kohler & Campbell keybed with the Gulbransen sensor strip.

Although it's difficult to discern, the strip is lined with 88 optical switches (Gulbransen refers to them as finger-like actuators, or "Nessies") that convert key movements into messages that the control box interprets as MIDI note-on, note-off, and pressure data. The Orchestra II Pro MIDI control box/sound module is mounted with four screws to the underside of the piano's keybed. You can conceal the sound module by sliding it back beneath the keybed.

The completely Gulbransened upright piano, including their nifty SSW2 sound system, comprising the two small satellite speakers on top of the piano and the powered subwoofer cabinet on the floor. The SSW2 sound system did a fine job of amplifying the Orchestra II Pro, so that it played at an even volume with the piano.



GULBRANSEN MIDI PRODUCTS

KS5: Velocity-sensitive, note transposition, transmits MIDI program changes, assignable pedal controls, volume control, one keyboard zone, one selectable MIDI transmission channel. \$798.00 including sensing hardware.

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KS20: Velocity-sensitive, release-velocity, programmable velocity response, note transposition, transmits MIDI program changes, assignable pedal controls, four slider controls, four keyboard zones, layering, 64 programmable patch buttons, channel and polyphonic aftertouch, two foot pedal/external controller inputs, MIDI preset chaining, transmission on up to 16 MIDI channels at once. Measurements: 10-3/4" x 7-1/4" x 1-1/2", 2-3/4 lbs. \$1,255.00 including sensing hardware.

Orchestra II 5: Velocity-sensitive, fixed pedal functions, two keyboard zones, four sliders (volume and attack rate for each zone), voice layering, 16 PCM sounds, 64-note polyphony, automatic harmonies. Price not available.

Orchestra II Pro/Plus: Velocity-sensitive, release-velocity, programmable velocity response, note transposition, transmits MIDI program changes (defeatable), program-change mapping, assignable pedal controls, two keyboard zones, voice layering, 16-channel multitimbral, channel and polyphonic aftertouch, two foot pedal/external controller inputs, four drum note maps. Measurements: 10-3/4" x 7-1/4" x 1-1/2", 2-3/4 lbs. \$1,385.00 including sensing hardware.

SSW2 stereo speaker system: Two cubical satellite speakers (4-1/4" x 4" x 4-3/4", 2 lbs. each), bi-amped subwoofer speaker (10-1/4" x 9-1/4" x 18-1/4", 23-1/2 lbs.). 100-watt stereo amplifier. Volume, treble, and bass controls. Left and right RCA inputs. \$435.00 for wood, \$495.00 for Avonite (simulated polished marble).

KB3 speaker cabinet: Three-way hexagonal bi-amped speaker system. 100-watt stereo amplifier. Volume, treble, and bass controls. Left and right RCA inputs. \$495.00.

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MIDI PIANOS

the Bösendorfer costs more than \$100,000, so it isn't as popular as the Disklavier, and we didn't pursue getting one. (Besides, we couldn't have squeezed a 7'4" grand around the corner into the conference room.)

Another competitor in the player-piano stakes is PianoDisc, whose PDS-32 piano retrofit only became available last year. The PDS-32 converts any piano into a player piano, and a companion product, Symphony, provides orchestral sounds to accompany the piano. However, although the PianoDisc system can respond to incoming MIDI data, it isn't able to transmit MIDI or record a performance done on the retrofitted piano keyboard itself. Until recently, the PDS-32 was limited to playback applications only, and the company has an extensive library of pre-recorded piano and orchestral music for the PDS-32 and Symphony. PianoDisc's most recent development was the introduction of the TFT Record System, which makes use of a pressure-sensitive strip that converts the pressure of the pianist's keystroke into MIDI velocity data. Production of the TFT Record System, which is available as an upgrade for PDS-32 owners, began in February — as we were writing this story — so we weren't able to get a PianoDisc instrument in for comparison with the Disklavier.

There's no denying that we're evaluating an apple, an orange, and a banana here. On one hand, the Kawai and Gulbransen-fortified pianos are essentially master controllers that happen to make acoustic sounds. Although it transmits MIDI data, the reproducing Disklavier was designed to record and recreate as accurately as possible any performance played on it; MIDI transmission and reception were incorporated as extra

That isn't a combo amp connected to Yamaha's Disklavier grand piano. It's the Disklavier's control console, the Control Wagon DKW10 (sounds like some kind of covert police vehicle). Connecting the Control Wagon to the piano is a 10' long, 3/4" cable. If the cable is long enough, you can roll the Control Wagon to your favorite chair in the living room, but you might find it more convenient to use the wireless remote control, which provides more functions than the Wagon's control panel anyway. (Disklavier provided by the Yamaha Peninsula Music Center, San Jose, CA.)

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Contact: Yamaha, 6600 Orangethorpe Ave., Buena Park, CA 90620. (714) 522-9011. Fax (714) 522-9301.

benefits. On the other hand, it's also unfair to directly compare the Kawai with the Gulbransen retrofit, because one comes the way it is from the factory, and the other is added after the fact.

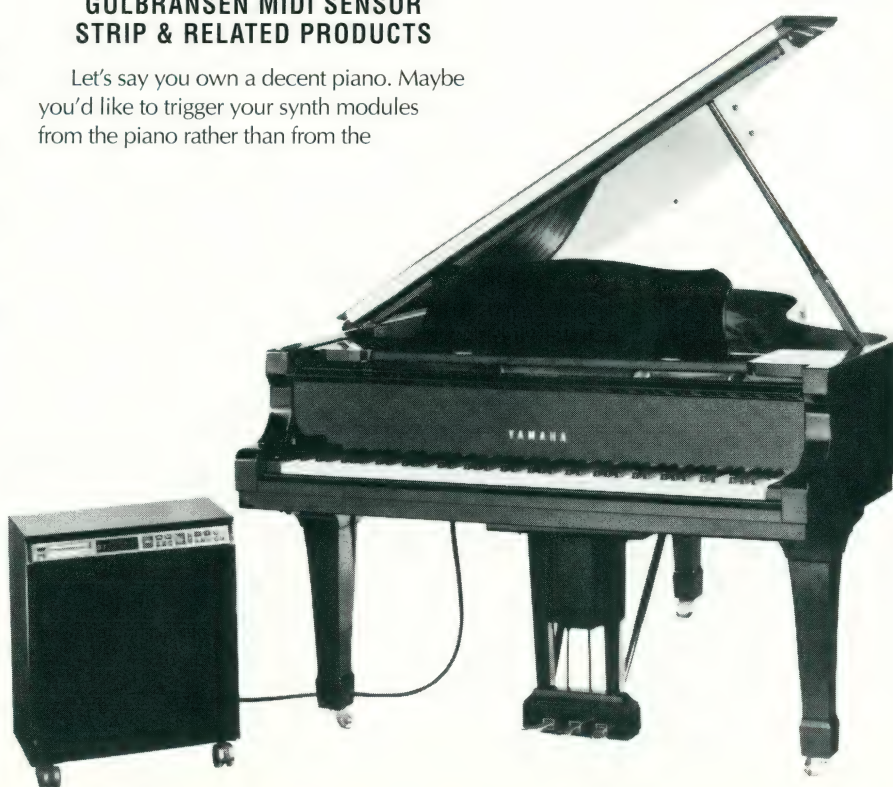
The solution is simple: We won't compare these devices, we'll cover them as individual entities. This isn't a shootout, it's a smorgasbord. Under that premise, here goes.

organ-style keyboard on a typical synth. Gulbransen is the company you should call. Known for the player pianos they made back in the '20s, Gulbransen now manufactures a line of products that can make your piano into a MIDI controller and even a multi-voice performance center.

The Sensor Strip. The first step requires the installation of a sensor strip beneath the keyboard. Gulbransen strongly recommends you

GULBRANSEN MIDI SENSOR STRIP & RELATED PRODUCTS

Let's say you own a decent piano. Maybe you'd like to trigger your synth modules from the piano rather than from the



MIDI PIANOS

have this done by a qualified piano technician. It took Gulbransen's technician less than an hour to install the entire MIDI retrofit system in our Kohler & Campbell upright piano.

The sensor strip consists of a series of optical sensors, one for each key of the piano.

Depressing a key pushes down on a spring-loaded actuator finger, which in turn activates a shutter that gradually blocks an infrared beam passing through it and striking a sensor. When the light dims to a specific level, the sensor strip generates a trigger that results in the output of a MIDI note-on corresponding to the key that was depressed. The spring on each actuator finger exerts about 3 grams of force, which is considerably less than the mass of the key itself. Gulbransen claims this is undetectable by the keyboard player, and we concur; we couldn't tell any difference in the action of our piano after the strip had been installed.

On most pianos, there is a space beneath the keyboard to mount the sensor strip. If not, the technician who installs the Gulbransen retrofit will need to excavate a channel in the key frame. The company reports they've only encountered one antique piano that couldn't safely be adapted to their retrofit. Not to imply that Gulbransen only deals with pianos. They offer three different sensor strips. Besides the SS88 for acoustic pianos, there's the SS73, specifically designed for the Rhodes Suitcase electric piano (although it will work for other keyboards), and the SS61, for five-

Continued on page 91

HOW BIG IS YOUR PIANO?

Although there are no strict rules, pianos are often classified by their size. In his second edition of *The Piano Book*, piano technician and frequent *Keyboard* contributor Larry Fine outlines three classes of grand pianos, measured lengthwise, and four categories of upright or vertical pianos, considering the instrument's height. Fine breaks them down as follows:

| Grand Pianos | Length | Vertical Pianos | Height |
|--------------------|-------------|-------------------|-----------|
| Small (Baby) Grand | 4'6" - 5'6" | Spinnet | 36" - 39" |
| Medium Grand | 5'6" - 7'6" | Console | 40" - 43" |
| Concert Grand | 7'6" - 9'6" | Studio | 43" - 47" |
| | | Full-size Upright | 48" - 60" |

Size isn't the only determining factor in classifying upright pianos; also considered is the type of action used in the piano. That kind of detail is beyond the scope of this article. If you want to know more you'll have to get *The Piano Book*, which you should probably do anyway if you're in the market for a piano.

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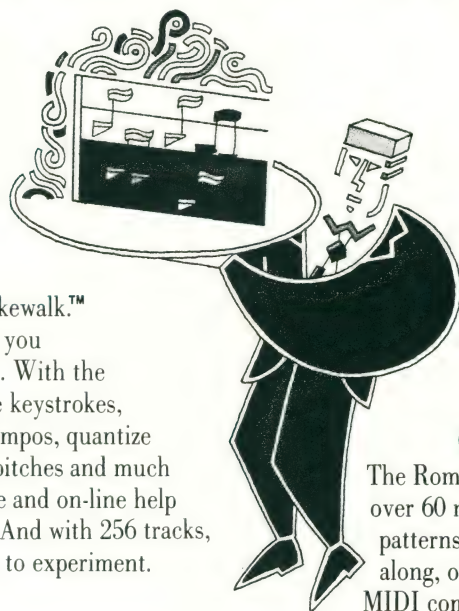
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MIDI PIANOS

Continued from page 86

octave keyboards including organs.

One of the coolest things about Gulbransen's keyboard sensor strip is its ability to sense pressure on each key individually. (*Pressure-sensitivity* on a piano? Wow!) Both the Orchestra II Pro and KS20 can convert key pressure data into either channel or polyphonic aftertouch. With polyphonic aftertouch, each key transmits its own pressure data, whereas a single pressure value globally affects all keys in channel aftertouch. For players who rehearse the technique, polyphonic aftertouch can add a considerable level of expression for musical performance. Not many synths respond to it and fewer keyboards are capable of generating it, but we're always happy to find new devices that support it.

That said, we have to point out some interesting phenomena in the transmission of aftertouch data from the Gulbransen control boxes. We hooked up an Atari Mega ST running C-Lab's Midia, a MIDI data analyzer program, and discovered that almost all of the piano keys generated a different aftertouch scale. One key put out values of zero, 31, 63, 95, and 127. Another generated zero, 25, 50, 76, 101, and 127. One key would transmit only zero and 127. The longest string, and hence the one with the most resolution, came from A#1: zero, 11, 23, 34, 46, 57, 69, 80, 92, 103, 115, and 127. However, to get the whole range up to 127, we had to push *really* hard on the key, and by pushing at a slight angle, we could actually mute the piano strings for that note before much aftertouch data was generated. The Orchestra II Pro and KS20 provide aftertouch-response parameters, but they work globally.

For some non-critical applications, the sensor strip's inability to generate all the aftertouch values between zero and 127 won't matter. However, professional users and most serious players require a consistent response from one note to the next, with more resolution than the Gulbransen keyboard sensor strip provides.

Another sensor strip, the optional SS5, detects piano pedal movements via three actuator switches. The standard SSM1 only senses movement of the sustain pedal, so it won't generate data when you step on the shift (or soft) and sostenuto pedals. (Gulbransen's technician installed an SS5 in our

test piano, but the Kohler & Campbell up-right's middle pedal works as a secondary soft pedal — by lowering a cloth deflector between the hammers and strings — so he didn't connect the middle pedal to the SS5.)

Keyboard Calibration. When the MIDI retrofit has been installed, the first thing you have to do — and you have to do it periodically from then on — is calibrate the keyboard. Although it sounds difficult, it really isn't. All it requires is that you play every key on the piano — lightly, so that you don't skew a key's aftertouch response — and then push each pedal. You can play a chromatic scale all the way up the keyboard, or you

could use an object like a length of two-by-four to play a bunch of notes at once. This operation "tells" the control box where all the event triggers are.

During the course of our tests, we had to recalibrate the keyboard several times because one key (B4) stopped triggering the MIDI control box. We hoped that recalibrating the keyboard would improve aftertouch response, but it didn't.

The Control Box. This mounts to the underside of the piano keybed and slides in and out to conceal and provide access to the control panel. (You can use the control box as

Continued on page 94

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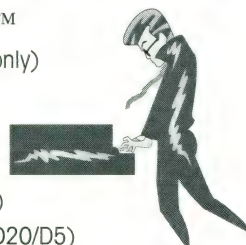
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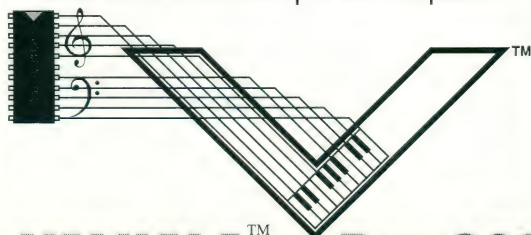
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MIDI PIANOS

Continued from page 91

a table-top unit if you don't want it mounted on the piano.) Gulbransen splits its line of control boxes in two: those with a built-in sound generator, the Orchestra series, and those without, the KS series. We've outlined the capabilities of each Gulbransen control box in the features box on page 83. Currently,

there are three KS models and two Orchestra versions. We had two weeks to play with the KS20 and the Orchestra II Pro. The latter will soon be replaced in Gulbransen's line by the Orchestra II Plus, which we had a brief opportunity to listen to. The Plus maintains the same features as the Pro, but its audio quality has been improved. We understand that Gulbransen is almost ready to release an Orchestra model with a built-in MIDI sequencer.

One thing not to look for on any of the current line of Gulbransen control boxes is an LCD display. The status of all operations are indicated with single LEDs (which is certainly better than what Kawai's MIDI control box offers — nothing). Many functions that

you'll deal with on a regular basis are quite straightforward, but deeper programming operations can be difficult.

Orchestra II Pro. Actually not a lightweight in terms of synthesis power, the Orchestra II Pro provides some useful 16-bit PCM sounds and an impressive 64 notes of polyphony. Compare that with pro synths that top out at 32 notes. A pool of 64 notes means that few pianists will encounter the stolen-note syndrome.

The II Pro's on-board library of 54 sounds includes various types of strings, basses, acoustic guitars, and traditional orchestra instruments, as well as a few synth sounds, whistle, shakuhachi, and a drum kit. Although these sounds can't compete with those found in professional sample-playback synths, they're certainly acceptable for home use. We weren't thrilled by the organs, but the Leslie simulation was pretty good, and after-touch toggles it between slow and fast rotating speeds. There's also a piano sound, in case you want to play back a piano track from your MIDI sequencer. What did we think of the piano sound? It's good. We MIDled the II Pro to the Disklavier, started the Disklavier playing a Chick Corea piece, and caught ourselves looking at the upright's keyboard to see if it had somehow transformed itself into a player piano. (We'd had a long day.)

The II Pro provides two separate voices, one for the left hand and one for the right. Each voice has a volume slider and an attack slider. The volume sliders are side by side, so you can quickly adjust both voices separately or together. Normally, the attack sliders function only for string and choir sounds, and control how quickly those sounds get to their full volume when notes are played. These sliders are also used for tuning each voice to an out-of-tune piano. Alternate tuning enthusiasts will appreciate the ability to individually tune each note on the II Pro up or down by about a half-step.

There are eight labeled buttons to select a sound for each voice. Reselecting the sound that's currently playing will mute the voice. Both voices can be muted at once using the control-panel mute button. You can reassign a different sound to each button, but you'll have to remember that the label for that button no longer applies. The II Pro stores new sound assignments even when it's turned off.

When you turn the II Pro on, it always defaults to a split point between Middle C and C#3, with the first sound in each voice bank active for the appropriate side of the split. Reassigning the split point is as easy as pushing a button and playing a note. There's also a button for layering both voices across the entire keyboard. Voices can be

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set to play at a constant volume, regardless of how hard you play.

The II Pro provides four options for playing one or more notes in harmony with the notes you play with the right-hand voice. The actual harmonic notes themselves are determined by both the right-hand note and the chord that you play with the left-hand voice.

Considering it's a consumer-oriented sound module, you might think the Orchestra II Pro would run rather light on MIDI capabilities. That isn't the case. The default MIDI channels for the left and right voices are 1 and 2, respectively, although you can reassign either to any MIDI channel. The volume sliders transmit MIDI volume data over the channel set for their respective voices. Moving either attack slider results in the transmission of continuous controller messages for data entry (controller 6), LSB for data entry (least significant byte for controller 6), and registered controllers 100 and 101. There is no way to reassign the type of data transmitted by each attack slider, but you can disable transmission of all MIDI messages for each voice. Unfortunately, muting a voice in play mode won't do this; it's an advanced function that you have to program. It's also a global setting, so you can't save it as part of a patch.

We're impressed that the II Pro offers in-

dependently programmable, three-segment response curves for MIDI velocity and release velocity, as well as for the II Pro's response to velocity. You define the X and Y coordinates for two points in each curve, and it's possible to generate a variety of useful curves, including reverse linear for cross-switching between two synth voices via velocity control.

To make up for the fact that a piano has no pitch-bend and mod wheels or their equivalent, Gulbransen provides two sweep pedal inputs on the II Pro. You can reassign the pedals to output practically any type of controller data, including pitch-bend and mod wheel.

Since it has a MIDI in that's separate from the sensor strip input, the Orchestra II Pro can function as a synth module, and will respond to incoming MIDI data assigned to a specific MIDI channel whether a keyboard sensor strip is connected or not. Although you can play the Orchestra from the piano keyboard at the same time the sound module responds to data from a sequencer or second MIDI controller, you have to keep the MIDI channels separate in order to avoid embarrassing stuck notes on the Orchestra. The addition of merging would be welcome in the Orchestra, and in the KS series control boxes as well. MIDI merging allows more flexibility in the arrangement of MIDI devices in a system.

Audio outputs on the II Pro are RCA, and it comes with a 12' stereo RCA cable for connection to a sound system. Speaking of which, we'd be remiss in failing to mention that we enjoyed using Gulbransen's SSW2 speaker system for our audio monitoring needs during these tests. The speakers sound great and there was plenty of volume to spare, in spite of the small size of its components. For amplifying the Orchestra module, the satellite speakers work especially well placed right on top of an upright, although they might get in the way on a grand when it comes time to close the lid. The SSW2 includes a power outlet so that, with the proper cable, you can power the Orchestra from the SSW2 rather than from the clunky AC power adapter that comes with the II Pro.

For home use, the Orchestra II Pro is a decent synth module/MIDI interface in tandem with a Gulbransen-MIDI'd piano. Basically, it does what it was meant to do very well. Programming some of its advanced functions can be difficult, and since the II Pro manual doesn't provide much depth tutorially, a number of these functions might go unused by the average player. Since the II Pro provides no sound programmability, synthesists would probably be happier opting for the KS20 to drive their favorite synths

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MIDI PIANOS

and modules.

KS20 MIDI Interface. Cosmetically, except for the stenciled labels, the KS20 is a duplicate of the II Pro. The buttons and four sliders are laid out exactly the same way. Operationally, the two share a number of MIDI control characteristics, but as you would expect, the KS20 offers more MIDI power.

The KS20 offers four presets, two that contain two keyboard zones and two with four zones. There are 16 patch buttons on the front panel, each of which can be easily programmed to transmit any program change number. In a two-zone preset, eight buttons are available for each zone. There are only four buttons available for each zone in a four-zone preset.

To define a preset while the KS20 is on, you select the preset and a patch for each zone. Reselecting the current patch button in a zone will mute the associated zone — the KS20 won't transmit notes or any other data for that zone. The patches that you've selected are stored when you switch to an-

other zone; however, when you turn the KS20 off, you lose all the zone patch assignments that you've made.

Within a two-zone preset, two of the KS20's four sliders default to sending MIDI volume data separately for the two zones; the other two sliders transmit mod wheel data. In a four-zones preset, the sliders default to volume controls for each zone. You can reassign any slider to transmit whatever controller data you'd like.

To define a zone's range, you select a patch, hit the Range button, and play low and high notes. Hit the transpose button and you can assign a transposition offset by playing a note on the keyboard; that note's proximity to Middle C will determine the offset.

This kind of programming is quick and easy. But digging deeper gets hairy, as with the II Pro. You have to depend on multiple LEDs to monitor the machine's status, and you'll need the manual in hand to verify what you're doing. Unfortunately, the manual is poorly organized and needs more tutorial-based directions to help the user.

Like the II Pro, the KS20 has two footpedal inputs, and you can assign them to transmit pitch-bend, modulation, or any kind of continuous control data. Additional controller inputs would be helpful, as would merging on the KS20's MIDI in.

Easily the KS20's most serious limitation is the size of its non-volatile memory storage. Every time you turn on the KS20, it loads RAM with preset data from non-volatile memory in the form of an EEPROM, or erasable read-only memory. Trouble is, the EEPROM chip has less storage capacity than the RAM. So, when you turn the KS20 off, some of the data that you've saved in RAM memory is discarded. Yeow! For example, if you've set up a multi-channel preset with program changes and MIDI volume settings for each channel, you'll lose all but one channel's worth of data when you shut down. Only 16 of the 63 steps in a preset chain will be remembered. What's the point in programming intricate setups, then? Don't expect the KS20's sys-ex ability to help either, because it only dumps . . . take a guess: non-volatile memory. Grrrr! It's irritating for a product to give so much that's good, and then take some of it away.

In spite of these negatives, the KS20 is the best thing around as far as MIDI piano retrofits are concerned. We hope to see it get better.

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Disklavier performances are stored on double-sided, double-density 3-1/2" disks. When the Disklavier is first powered up, it won't do anything until you insert a properly formatted disk. If there are performances stored on the disk, you can play them much as you do a CD, except that access time isn't nearly as quick. It's possible for the Disklavier to play through all the performances on a disk, and it will also trigger *synthesizers via MIDI*.

There's only one problem with layering synths with the piano: the Disklavier's note-on response time. When you send a MIDI note-on to the Disklavier, it takes about 500ms to play the note. That's half a second. The actual delay can vary, depending on the velocity of the note; lower velocities result in the Disklavier playing notes more lightly and, due to the piano's hammer mechanics, later.

This isn't as much a problem for sequence playback as it is live performance. Since the Disklavier always plays behind the beat, you have to compensate by delaying whatever you send to any other MIDI sound source. Don't worry if your sequencer doesn't pro-

vide such a delay function, because the Disklavier provides the means of delaying both incoming and outgoing MIDI data by up to 700ms, in steps of 4ms. By triggering synths from the Disklavier's sequencer or by playing a MIDI sequence through the Disklavier and adjusting the delay factor to about 500ms, you can get the two to play together. (The Disklavier isn't capable of merging incoming MIDI data with notes played on its keyboard. Its MIDI out will only transmit data from either the Disklavier's sequencer or keyboard at one time. Besides merging, we'd like to add velocity scaling and some way of transmitting program changes to our wish list for the Disklavier.)

For performance, as long as one triggers synths from the Disklavier keyboard, there won't be any delay between the response of the piano note and the synth. But if you want to trigger the Disklavier from another keyboard, then you'll have to play some programming tricks on your synthesizer, so that the attacks of notes are delayed and they play together with the Disklavier. The result will resemble the effect experienced by a pipe organist: Play a note and wait a sec . . . oh, there's the sound.

Besides the usual tape-transport-type controls (play/pause, record, stop, fast for-

ward, and rewind), forward and backward song-select buttons, and a song/section-repeat button, the Disklavier's control panel — as well as the nifty hand-held, wireless remote — offers some unexpected goodies for controlling playback functions. Piano playing too loud? Push the volume button followed by the minus button. Each minus press decreases the Disklavier's volume by a step; playback volume ranges from -10 to +2. (The actual reduction or increase in decibel level depends on the music as it was originally recorded.) It's really wild to hear the piano quiet down according to your instructions, and it doesn't even slow down. The volume change will affect playback from an external sequencer as well as from a Disklavier disk, but MIDI velocity values transmitted from the Disklavier's MIDI out are unaffected.

Likewise, you can also transpose the playback key, by up to ± 6 half-steps, or ± 1 or 2 octaves. If you try this during playback there will be a short interruption of the music. This function not only transposes what the Disklavier is transmitting, it will transpose incoming MIDI notes to the specified range and route those to the MIDI out too.

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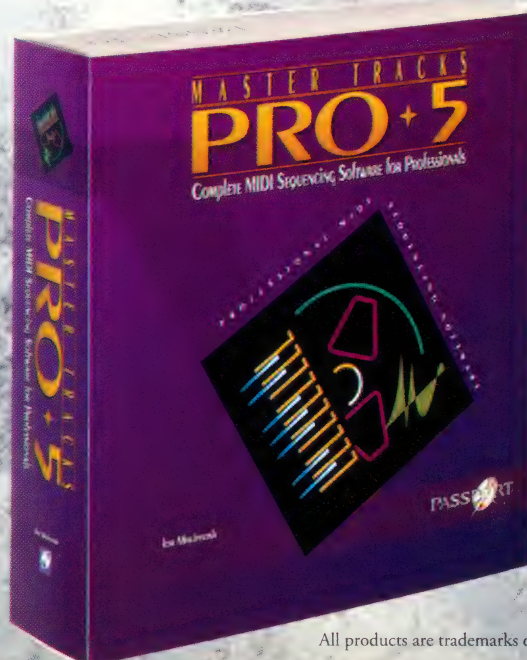
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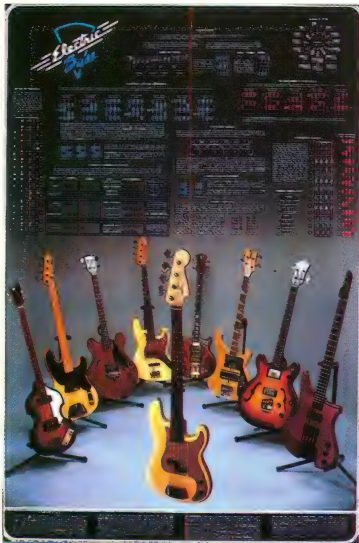
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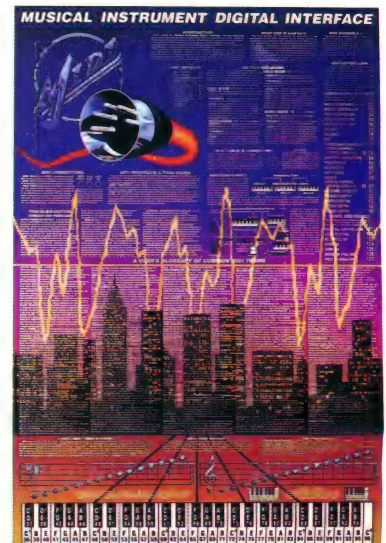


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down between -50% and +20% of the original tempo by increments of 10%, except you also get $\pm 5\%$. For syncing the Disklavier with an external MIDI sequencer or drum machine, you have a choice of setting the *Disklavier* to act as the master clock or to

slave to incoming MIDI clocks.

The remote provides numeric keys for selecting tracks on a Disklavier disk and a button for displaying the current track's title. It's quicker to return to the original playback volume, tempo, or key during playback with the remote, because it has buttons just for those purposes. Using the remote, you can program an alternate playback order for the current disk. The fast-forward and rewind buttons will stop playback while the Disklavier sequencer silently moves forward or backward through data on the disk.

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Disklavier music, you need to format a new disk and then choose among a number of options. Tempo can range from 40 to 230 bpm. If you want to record to a metronome, it can be set to count from one to nine beats per measure; electronic beeps emanating from the controller unit will help you keep time. (The only possible time signatures range from 1/4 to 9/4 — nothing real fancy, but the Disklavier's sequencer has a respectable timing resolution of 96 ppq.) Maybe you'd like to record one hand at a time; if you do, you can play the piece back later and mute the

Continued on page 102

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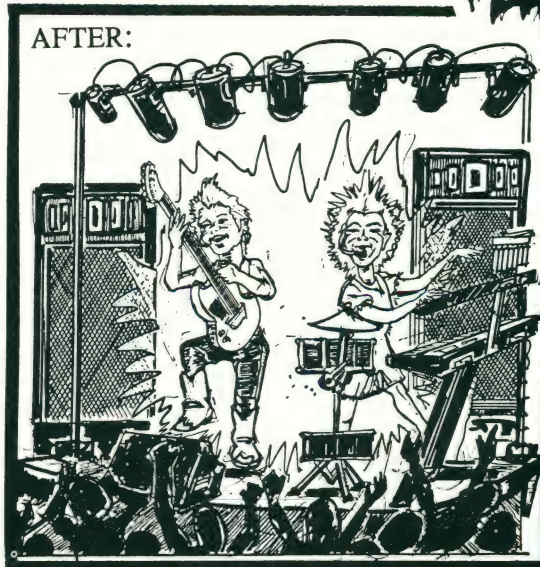
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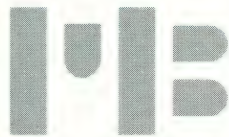
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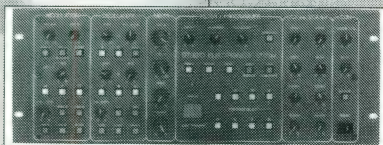
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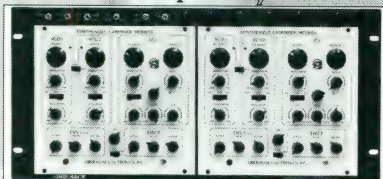
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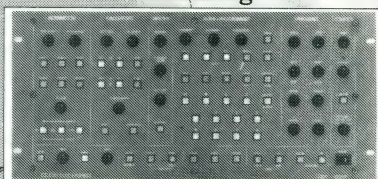
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MIDI PIANOS

Continued from page 99

part that either hand recorded independently. (Lots of educational Disklavier disks were recorded this way.) You can overdub new parts, as long as you don't exceed the Disklavier's mechanical limit of playing a maximum of 16 notes at once. You can punch-in and replace unwanted notes within a piece of music, or you can edit sequences down to the note level. A note's duration, its velocity, the time that it occurs, and the note itself can be altered, or you can delete the note entirely. For more editing power, you can put the Disklavier disk in a Yamaha QX5 sequencer, work on it there, and then convert the results back into a Disklavier file.

Given the prevalence of hard disks these days, we wonder how long it will be before Yamaha enables the Disklavier to work with something more substantial than a floppy disk. Imagine compiling your favorite pieces from various floppies onto a hard disk for playback in any order, at any time.

We aren't too enthused about the documentation provided with the Disklavier. Unlike Gulbransen's overtly reference-style manuals, the Disklavier's manual is practically all tutorial, and almost none of it is backed by reasons why you are pushing buttons, only the number of times you should push each button.

Too many of us have grown to take MIDI pretty much for granted, thinking nothing's that special about playing multiple synths from a single keyboard and a sequencer. But when you see the keys and pedals on an acoustic piano magically moving in response to incoming MIDI data, it's a thrill.

The obvious question is, who would buy a Disklavier? Pros who can afford them, music schools of all levels, rich people who may or may not be able to play, but who want "live" piano playing in their mansion. And don't forget shopping malls and hotels.

KAWAI KG-2 PARLOR GRAND WITH MIDI

Piano-wise, this is a beauty. It not only looks gorgeous, it sounds gorgeous. MIDI-wise, though, Kawai's KMC-12P controller box — which is also available on Kawai's 6'9" GS-60 grand — could use some software updating.

This box resides at the lower left under-



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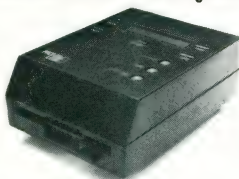
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MIDI PIANOS

side of the piano, just past the left leg molding. The panel on the box embodies pure simplicity: There are only a MIDI out, a 1/4" footswitch input, a power switch, and a DC power in jack. The footswitch is dedicated to switching MIDI output on and off. We were hoping for more, like maybe it could be assigned to transmit a MIDI message, something like that. For that matter, neither the Kawai's shift nor sostenuto pedals have sensors on them, so they don't transmit any data at all. The Kawai also doesn't transmit aftertouch, but it *is* a piano, so we aren't *really* complaining about *that*.

Power is supplied by a small external unit with separate power cables that run between the KMC-12P and the wall outlet. We much prefer this kind of power adapter as opposed to a wall wart that hogs outlet space.

We're sorry now for complaining so much about the Gulbransen control boxes' lack of an LCD, because LEDs would be

welcome here. The Kawai provides absolutely no indication of its current status, and all programming takes place in a mode you can only enter using a sequence of three notes on the keyboard. Any extraneous note or sustain pedaling that disrupts this sequence will keep you from entering programming mode, and it's really doubtful you'll inadvertently play these notes in the right sequence during a song. Programming is limited to selecting the MIDI transmission channel and one of three velocity-response curves. That's all. None of the curves very accurately tracks a light touch. Two of the curves typically generate a velocity value of 6, before jumping to values of 16, 28, or higher.

The Kawai MIDI grand suffers from one serious MIDI ailment: When you release all of its notes, it sends a global all-notes-off command, which won't be too good if you're using the piano with a sequencer and you lift your hands from the keyboard during playback of a sequence. Some of your synths may stop playing at a really bad time.

Again, the Kawai piano is beautiful. Buy a Kawai grand and then have Gulbransen install their MIDI retrofit. You'll be a lot happier than if you bought a Kawai grand with MIDI in the first place. ■



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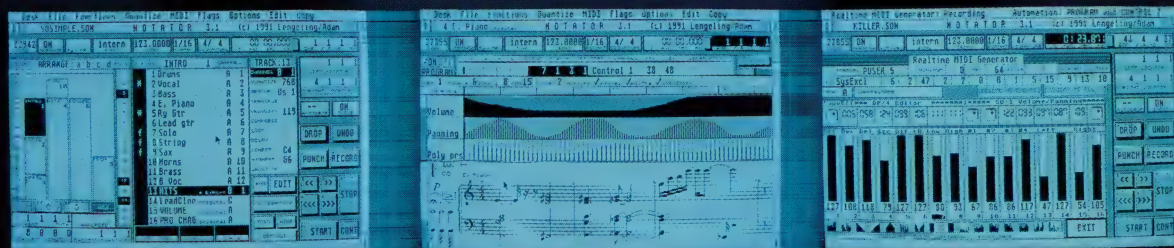
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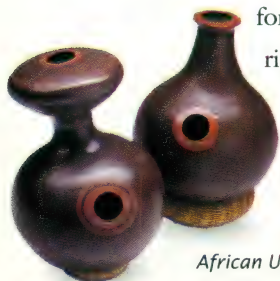


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REEL WORLD NOTEBOOK



J E F F R O N A

MUSIC WITH MUSCLES

CLIENT: ARTHUR KEMPEL

PROJECT: DOUBLE IMPACT

YOU CAN LEARN A LESSON FROM almost any project you work on, and the *lesson* changes almost every time. In our last exciting installment, we talked about knowing when something was good enough (or *not* good enough), and knowing how to be more demanding on yourself and others in your musical endeavors. To paraphrase: It's best to avoid life's "if only's" whenever you can.

I recently worked on a project that leaned far the other way, working for a hard-core perfectionist. It taught me something about letting something go and moving on for the sake of finishing a project, as opposed to dealing with perfection in an imperfect world. There's nearly always an element of compromise in working against a deadline, and budgeting one's time while keeping quality up can be a tough chore, especially when working under less than optimum circumstances.

The project was an action film called *Double Impact*, starring the "Muscles From Brussels" (kick-boxing martial artist Jean-Claude Van Damme). The composer was Arthur Kempel, an exceedingly talented, quiet, intense, self-effacing man. Arthur's not a big name to the public as a film composer, but he has a solid list of film and television credits, and has done ghost writing on a number of high-quality shows. This was my first time working with him, and I took a liking to him from our first meeting. In starting a new working relationship, I think it's great to get together before starting on the music to just sit and talk, play music for each other, and discuss working practices and ideas. I played him a few of the film scores I'd worked on and described some of my methods. Arthur played me a few of the demo sketches he had already done for the film in his home MIDI studio. They were very good, and sounded excellent.

The score he wanted called for synths to be overdubbed with a few percussionists and a full orchestra. Because this was a hard-core action flick, the sounds needed to be big, cutting, percussive, dark, and, at times, rather forboding. Hey, that's me all over! The film called for tons of music, almost wall-to-wall for its 100-minute length.

My job was the sound design, sequencing, and recording of the electronic parts. We worked this way: Arthur wrote orchestral and synth parts on score paper, then gave me a copy of the score (plus demo tapes to use as a guide for some of the sounds and nuances he wanted). I was to work from his scores at home, then go to a studio to record the final electronic parts onto a 24-track; the percussion and orchestra were to be dubbed elsewhere later.

Needless to say, there wasn't nearly enough time to do it all — less than four weeks to write, record, and mix all 100 minutes. Kempel had two ideas that he felt would make it possible to pull it off. First, he would write for a very specific number of synth timbres that he would use throughout the film. In fact, there were nine staves of music on the score for the preset synth "orchestra." The same sounds would be used again and again; certain ones for the hero, others for the villain, and so on. This certainly would make my work easier: I could set up a track template in my sequencer that would work for most of the film, and once I programmed the sounds he wanted, I could spend all my time playing in parts, editing, and then recording them. It seemed simple enough. But as with many projects, it's all in the details. There were lots of extra incidental sounds to be added to this basic palette.

The composer had some very specific sounds he wanted for the score. He created them and used them in his demos, which the director liked very much. Kempel made many of them with his stack of four Akai S612s, the very first Akai sampler, which holds one 12-bit sample at a time (and stores them to the old 2.5" quick disks). My first thought was, "Hey, I can beat this with my arsenal of 16-bit multitimbral samplers and synths." Well, I was wrong. Arthur really liked his original sounds, and nothing I came up with satisfied him as much. He repeatedly offered to let me take all his little samplers, but I felt I needed the quality and control I have with my own gear. In retrospect, I should have taken him up on the offer. As a programmer working with composers who use MIDI gear, my job is often to try to beat what they have done for their demos. Usually I do, but if a piece of music is married to the sounds the composer heard while writing, it can be very hard to change, even if the new sound has improved fidelity or nuance. With electronic sounds, personality comes before fidelity. "Attitude Before Amplitude" is my motto. A good engineer can do amazing things with EQ, so if the basic sound is there, just use it.

The first thing I did was bring my sampler to Kempel's home studio and sample his samplers. We mixed his sound stacks together just

the way he had them in his demo, and fed the results to my gear. The mix levels were very critical to get the sound he wanted. The problem was that the playback didn't sound *exactly* like the original, probably because of differences

in velocity sensitivity and filter tracking between his equipment and mine. The differences were subtle, but Arthur has a very acute ear, and he wasn't entirely satisfied. My thought was that in the track it would be fine, and I could use the samples to do my sequencing and additional sound design at home. We proceeded, but he remained unconvinced.

He had other specific sounds he wanted to use, some in his Yamaha DX7 and TX7s (remember those?), some from a couple of other synths. I felt very comfortable in replacing some of his sounds with different instruments. I went home and started programming. I used his demo tape as the

basis and built from there. My goal was to use my synths efficiently enough to record most cues in one pass and not have to do overdubs in the studio. For many cues I accomplished this, but some sounds needed complexity and an overall bigness that called for layering several instruments together. Those would simply take more time in the studio.

As Kempel sent me scores, I sequenced the parts, refined the sounds, and then went back to him with a cassette of my demos. He listened to them and gave me notes on what he wanted changed. Since I was using some of his sounds as well as some of my own, he was very critical about velocities and blends between stacked synth sounds. It wasn't uncommon for me to redo a demo three or four times. All the while, he continued to say that he didn't hear what he wanted for those stacked sounds we sampled. What he wanted was something *exactly* like his demos. He still wanted me to use his old Akai

• • • •
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ONE'S TIME
WHILE KEEPING
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CAN BE A
TOUGH CHORE.**
• • • •

Jeff Rona is a composer-synthesist based in the Los Angeles area (and former chairman of the MIDI Manufacturers Association). He was author of the Keyboard "Computers On-Line" column in 1988-89.

REEL WORLD NOTEBOOK

612s, and I was getting just frustrated enough to relent, even though they were very limited in their flexibility. We decided to compromise and have me use a pair of them as an added boost to my samplers.

There was one old sound he asked for that worked surprisingly well. I cringed at first at the thought of using a DX7 for a drum sound, but Kempel had a patch called BeatMeHarder that he referred to by name in the score. I've had this patch for years, and never thought of using it. It's a harsh, white-noise sound with a downward-bending tom ring in it, like a cheap imitation Simmons drum. But it turns out to be perfect for doubling with fast, staccato, pulsing, step-loaded rhythm lines that need some extra punch. That is, it doesn't work by itself, but it is excellent for adding energy to a synth line. I added two powerful gated tom samples to it — one panned left and the other right — and alternated between them for an interesting stereo effect. We used this composite sound in several chase scenes.

In most film scores, there are a limited number of themes that occur throughout the movie. We hear the "evil" theme whenever the villain is in the picture, and the "good" theme whenever the hero is there. Thus, musical materials can get recycled heavily. When I sequence a score, there's a technique I've found useful and time-saving. If you use a sequencer that is capable of handling multiple patterns or parts with-

in a single song file, make each cue a separate pattern instead of putting the cues into separate files. If you put most or all of the score into one file, it's a breeze to grab a section or a line from one cue and paste it into another. Film composers frequently use a kind of shorthand in their scores. Instead of writing down the actual notes, they simply write "Col m12-m23 from 2M4" on the staff. This means to reuse measures 12 to 23 from the cue called "2M4." Col means "with" in Italian, and is the traditional means of repeating material without having to rewrite it. When I see this, I simply go to that other cue (in the same file), copy the proper bars from the correct instruments, and paste them into the new cue. While it's possible on most computer sequencers to paste between files, it is far more time-consuming.

Finally it came time to put all the electronics down on 24-track tape. This had to be completed before Kempel could record the live musicians, and we were getting down to the wire. The budget on the project was relatively low, and there was a lot of music to record. It can take anywhere from one-and-a-half to four hours to record each minute of final music. That includes setup, final tweak time, and the inevitable musical problems and changes of mind that force cues to be redone in the studio. While I tried to make it so that many cues could be done in a single pass, most of them needed at least one overdub. The big textures Kempel wanted needed multiple passes (and reprogrammed synths).

A method that I find saves studio time is to set up a palette of as many sounds as possible and record them for every cue in the film, instead of recording and finishing each cue before going to the next. After recording the first sounds, I set up a second (and possibly third) wave of sounds and record them for the whole score until everything is recorded. Once a synth sound is loaded, most engineers will take quite some time to fiddle with the EQ and effects to optimize it. It would be a big waste of time to redo this for every cue: Get it right once and just run down the tape for every piece that uses it. Kempel had under-budgeted the number of days needed to record the amount of music that we had to do. We found a small but very nice room at a local studio that was set up specifically for synth tracking. We booked four days with an option on a fifth to record the 100 minutes of music.

There were some big obstacles to recording the synthesizers. Arthur wasn't finished writing the music by the time we went to the studio, so he couldn't be there to oversee the recording. I've never recorded an entire score without the composer there for every minute of the session. Things always change, and questions do come up. I was nervous about it, because I knew that he wanted things exactly right, and in order to leave room for the other musicians, we would need to mix several of the synth parts down to a few stereo tracks.

In addition to recording the synths, it was also my job to put all the SMPTE time code onto

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the tape for synchronizing, and to record all the click tracks for the musicians to play against, including some cues with no synth parts. We barely had the time to do it right the first time, and yet we also needed to send rough mixes to the composer. Also, I had to somehow sequence the last cues while in the studio.

The time came, and I moved all my equipment to the studio and set it up. A typical recording day started around 8 or 9 A.M. and went until 2 or 3 A.M. for five consecutive days. On several of the days, I received new scores from Arthur to sequence, and dismissed the engineer around 10 P.M. so I could stay and record the parts into the computer. Fortunately, these latter cues involved a lot of cutting and pasting. Still, there was a lot of new information to play or step-load in. Kempel would listen to the demos, and there were invariably one or two things to change. On the second to the last day he came to the studio and listened to our work, now nearly finished. He was happy with some parts, but he wanted us to redo several sounds, including the sound that used his stack of little samplers — some of the resampled sounds just didn't work for him. He brought over his little 612s and asked me to do it over again. However, this was a sound that occurred in almost every cue in the film, so it took a few hours just to redo one sound. Resampling his sounds to my sampler turned out to be a very time-consuming shortcut!

Later Arthur phoned to say that after re-listening to our rough mixes he wanted yet more

changes, some timbral and some musical. We re-recorded some sounds three or four times. Every day was a marathon. I was nearly exhausted. This was becoming one of the most difficult jobs I'd done. If the composer had been there to approve each sound and performance as it was set up and recorded, this wouldn't have been so hard, but the circumstances just didn't allow for it.

It was the first time I had ever had to work this way. It was an unfortunate situation that necessitated a lot of extra work. I suppose some composers would have allowed some leeway because of it, but not Arthur Kempel. He was relentless about having everything sound just as he heard it in his demo or in his mind, regardless of the mental or physical toll. I've never seen anybody so driven under that kind of pressure. It was as if he would rather have half the score recorded but perfect, instead of just ensuring that the whole thing got done. I admired his tenacity and high standards, while at the same time praying that he would give in on some of the tiny details he wanted changed in sound and performance, just so we could get on with it. I learned that there's good enough, good, and good enough for Arthur Kempel. Fortunately for me and the film, the end result was finally the latter.

Well, almost. Arthur went off to record the percussion and orchestra, then returned for the mix. He still wanted to change and add more synth parts. In fact he had to, because the di-

rector re-cut the opening credits so much that the music no longer fit, forcing the composer to "improvise" a new opening cue with orchestra and synths. He brought his stack of Akai 612s back to the mixing studio, and I brought a few pieces of my gear as well. He made a number of changes and threw in some additional parts. We even redid one sound that occurred in almost every cue of the film, because he changed his mind about how it should sound. As he watched the picture, he created a new opening credit sequence using a part of the original orchestral cue and some sequences. He spent several extra days mixing so he could continue to change parts as he went.

I think the most inspiring thing about working with him was that he strove only to please himself. At any given time, the director, the engineer, his very supportive wife, and I felt that the music and recording was "good enough." He half agreed, but it wasn't what he heard in his head, and financial reality wasn't going to get in the way of redoing things until he got what he set out to get. It cost him a fortune in extra studio and engineering time to do it the way he did, and he knew it. He didn't seem to care. He simply couldn't live with a product that wasn't up to his incredible standards, regardless of even the movie itself. It was sometimes frustrating for me because I wasn't able to please him with everything I did, but I don't think there is anybody else out there that could, except Arthur Kempel himself. ■



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SONGWRITING

JESSE HARMS

GUIDELINES FOR CO-WRITING: THE STORY OF BAD ENGLISH'S "TIME STOOD STILL"

NOT EVERYONE CAN WRITE A GOOD song entirely by themselves. Some people are incredibly creative when it comes melodic ideas but their lyric-writing abilities are limited. Other times the writer is a singer who is equally skilled at writing lyrics and melodies but can't fully develop his or her ideas because they don't play an instrument.

When one of these situations exists, it's only natural to find a writing partner. Yet surprisingly, even though most writers are likely to find themselves in co-writing situations fairly often, few of them develop the necessary skills to make the process go smoothly and produce the desired results: a good song.

I'm frequently asked by my publisher to collaborate with an artist or another songwriter that I've never worked with before. I never really know how well things will go; no matter how good the writers are, not every combination is going to work. In an ideal co-writing situation, each writer brings his or her strengths to the songwriting process, with the hope that the result of their collaboration will be a song that's better than either one might have produced on their own. When you work with writers whose styles and tastes are similar to your own, it's more likely that you'll come up with ideas that are complementary. In the worst case, you step all over each other's talent and wind up with a song that you wouldn't even play for your friends — let alone get covered on an album.

This month I'd like to share how John Waite, Ricky Phillips, and I wrote the song "Time Stood Still" for the latest Bad English record, *Backlash*

[Epic]. The story illustrates a number of guidelines for working with co-writers. Following them won't guarantee that you'll come up with a hit single every time you work with another writer, but at least you'll have a head start.

Don't Come Empty-Handed. Before the guys came over to my studio, I organized three musical ideas that I thought might be worth working on. Guideline #1: Always try to bring something to the party: a chorus, a title, or a bit of music that has a definite direction. A lot of writers like to start from scratch and just "see what happens." I've never liked working that way, because you usually end up just fiddling around looking for some inspiration. It's better to kick a few ideas around until you find something that inspires you both; get some excitement going early on. I recommend that you bring that tape you've been making of all your good ideas so you've got lots of material to choose from.

Another reason for having several ideas available is that you can never be sure exactly what an artist is looking for. You might think your idea is perfect because it sounds like his or her last album, but they may want to go in a different direction on their new album. In fact, it's not uncommon for artists to call on outside writers because they want a new direction — one that they wouldn't necessarily have

gone on their own.

One of the three ideas I brought to the writing session was the chorus for "Time Stood Still." At the time, all I had was the title, the chord progression, and a basic idea for the melody. The idea was structured enough to establish a direction, but not so much as to limit John's vocal style. Of the three ideas I laid out, the guys decided this one was the one they liked best.

We spent the rest of the day writing the music to the verse and the bridge; all the while John ad-libbed the melody and some lyrics. The tape recorder was rolling most of the time — a good thing, as many of those original ad-libs found their way into the final version of the song. I realized something that first day: John had an outstanding ability to form melodies that fit his vocal style and to come up with good lyrics right off the top of his head. Guideline #2: When you're writing a song with a singer or a band specifically for their own use, capitalize on their strengths. If a singer has a certain lick he or she sounds good singing, then work it into the melody. If they can ad-lib lyrics, then let them ad-lib — don't sit them down with a pen and paper and expect them to be creative.

Learn To Speak Up — Gracefully. Songwriting is very personal, and you might find it tough to stick your neck out for what you think is good or bad. But in order to work with other people, you have to get over being shy about your ideas and learn to think out loud. Sometimes verbalizing an incomplete idea will inspire someone else to finish it. But when someone comes up with an idea you're not wild about, rather than just criticize it, try to improve on it or come up with something more appropriate. In other words, be constructive. It's also important not to get too forceful when you're dealing with songwriters who are also the artists. In these cases follow Guideline #3: Take a supporting roll and fill in the gaps. That way the song has a better chance of sounding more like one of theirs than one of yours. And that means it'll have a better chance of making it onto the album.

Take a Break. By the end our first writing session we all felt that we had the makings of a good song, so we planned to meet a few days later to finish it. Sometimes co-written songs suffer because they're not given the same amount of time to develop as the songs you write by yourself. Guideline #4: Leave a day or two between writing sessions so each of the writers can play around with the song on their own time. I used the break to solidify the lyrics and melody of the chorus so that we would have a goal to work toward in finishing the verse lyrics. Also during this time,

Jesse Harms is a staff writer for Geffen Music. He has played keyboards and written songs for a number of artists including Sammy Hagar, Eddie Money, and REO Speedwagon.

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Ricky and I finalized the song's arrangement and made a quick demo of the track.

A small note about demos: When you're working with a group, I think the demo should be produced only to the point that it gets the band members excited about the song. Don't try to make a finished record; you have to leave plenty of room for the group to expand and improve on the track in the studio. If all the band has to look forward to is recreating a demo when they go to make the record, their creativity will be hampered, and everyone's spirits will certainly be dampened.

The Finishing Touches. At the next writing session, we worked in a unique way that capitalized on John's ability to come up with lyrics on the spot. We set up a mike, rolled the tape of the demo arrangement, and worked through the song bit by bit. John improvised the lyrics one line at a time, creating the story as we went along. No lyrics ever got written *per se*, they were always recorded directly to tape. When we were happy with one line, we moved on. Ricky and I offered a few suggestions here and there, but basically we let John carry the ball. Guideline #5: If the other person gets on a roll, you have to know when to get out of the way. Unless you have something totally outstanding to contribute, be quiet.

The end result of letting John run free was that we got our lyrics and our vocal perfor-

mance at the same time. I had never worked this way before, but it turned out to be lots of fun.

After a quick mix, it was off to the band's producer Ron Nevison to see what he thought. Ron liked the song, but felt that the bridge wasn't up to snuff. This wasn't too surprising; I've often found that as a song evolves, it outgrows its original parts. So we scheduled another session to rewrite the bridge. Once again, before the guys came over, I wrote a new musical section using the existing lyrics — all the while keeping an open mind, so that if they didn't like it we could always come up with something else. As it turned out, the guys did like the idea, so after some fine-tuning we recorded the new section and spliced it into the original demo master.

The Last Word. I'm pleased with "Time Stood Still" because it turned out to be a very natural song for John to sing. I also like it because all three writers' strengths were capitalized on during the writing process. Co-writing is a great opportunity to gain a new perspective into how to write a song; you can see how other writers work and what methods they use. It can also be a chance to develop some camaraderie with your fellow musicians; communicating *through music is a feeling* that's hard to top. So *have some fun with it*, and remember Guideline #6: Always work at the other guy's house so he ends up having to program the demo.

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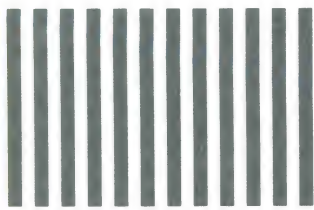
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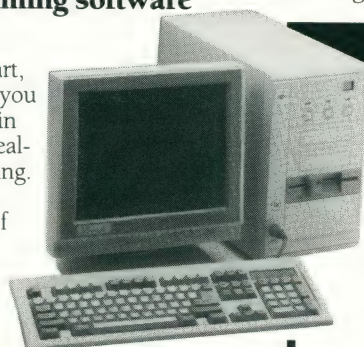
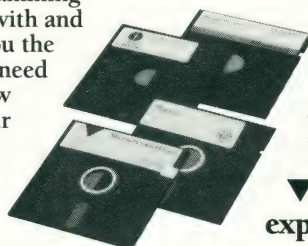
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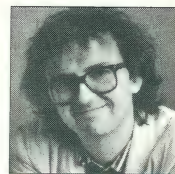
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IMPROVISATIONAL PIANO



ROBERT L. DOERSCHUK

FATS DOMINO & THE JIGSAW RHYTHM THEORY

LAST MONTH WE HAD A LOOK AT A side of Fats Domino rarely seen these days: the early Fats, whose style was based on free-wheeling interplay with the rhythm section. On these sides, Domino's work resembled that of the great jazz combo pianists and their sidemen, from Jelly Roll Morton with Baby Dodds through Oscar Peterson with Ray Brown, in that they all made an art of collective improvisation within a song structure.

The later Domino records departed from this formula and embraced a different approach, one more characteristic of what we now recognize as rock rhythm playing. In contrast to some of the titles we discussed in the Apr. '92 column, his parts on more recent discs became less loose and less interactive with the bass player and drummer. Instead, he began locking into repetitive patterns. Naturally, if the rest of the band continued to play interactively — with an inspired drum hit prompting a spontaneous

response from the guitarist, for instance — a locked-in, non-interactive piano part would only subvert, rather than participate in, the groove. But with the other instruments falling into repetitive parts of their own, a new kind of groove could be created — one based around a strong backbeat rather than a freer polyrhythmic drum part.

From Madonna to Springsteen, from house to speed metal, this is the kind of arrangement we hear all over the radio: Each player essentially sticks to one part and plays it over and over against a solid snare hit on the second and fourth beats of each bar. Consider it a jigsaw method: The bass part fits snugly against the horn riff, the keyboard part settles into a cushion between the bass and drums. It is the foundation of pop music today, and it owes much to Domino's contributions as a rhythm player.

If you can track down some of the earlier Domino recordings mentioned last month, com-

pare these often wild performances with the jigsawed rhythms on his biggest hits: "Blueberry Hill," "Walkin' to New Orleans," and "I Want to Walk You Home" all rest on a bed of steady piano triplets, straight-ahead drums, and gently riffing bass, without so much as a single guitar bend or keyboard trill disrupting the symmetry.

Even where this specific routine doesn't apply, the regularity of Domino's rhythm sections on most of his records from the mid-'50s on

Continued on page 159

Robert L. Doerschuk is associate editor of Keyboard magazine. He plays solo piano three nights a week at MacArthur Park, a popular establishment in Palo Alto, California, whose customers appreciate a steady walking bass every now and then.

BIG BEAT By Fats Domino & David Bartholomew

Ex. 1. Domino and his sidemen in this excerpt lay down a classic proto-rock groove, based on undeviating rhythm parts that fit together to form a propulsive beat. Note the tenor saxophonist's conservative recitation of the theme in his solo.

The musical score is written for piano (piano R.H.), alto sax, tenor sax (solo), bass, and drums (ride cymbal, snare, bass). The time signature is 4/4. The piano part consists of chords and triplets. The alto sax and tenor sax parts feature a melodic line with triplets. The bass part is a steady eighth-note line. The drums provide a steady backbeat with triplets on the snare and bass.

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INSIDE THE MUSIC

DAVE STEWART

GOLDEN RAIN

I LIKE TO START THIS COLUMN ON A positive, upbeat note — Hi there, keyboardists! Well hello, you ivory-bashers! . . . something like that. But this month, I'm just going to come straight out and say that I'm fed up with the lot of you. Your response to my "Horrible Chord Competition" has been, frankly, pathetic.

A while ago, I invited you all to use your imaginations to concoct the most disagreeable-sounding, hideous chord possible, a collection of notes guaranteed to turn a sensitive musician's stomach, make Schoenberg squirm, and offend even the tone-deaf. The lucky winner would then see the unpleasant chord immortalized in print, with an accompanying ghastly melody composed by yours truly. (All royalties to go to me; winner's name to be featured somewhere in very small print, space permitting.) Sound exciting? Bit of a challenge, an opportunity for career advancement? You would think so, wouldn't you?!

Yet so far, the number of entries received has barely reached single figures, let alone double, and at least two of the chords sent in were rather nice. This is clearly not acceptable to either me or the owners of this publication, so to stimulate interest we have decided to make the following, unrepeatable offer: The sender of the ugliest, most dreadful chord will receive *free of charge* a super pair of *Keyboard* mauve-and-yellow tartan leg warmers, attractively styled in brushed nylon with a striking lime-green bullfrog motif. Second prize will be the collected CDs, 33 in all, of prodigious yet unknown Scottish keyboard talent Eric McWhirter. Eric is unique in his ability to create authentic new age moods of immense duration on unaccompanied home organ, producing in the listener a trance-like state eerily akin to bore-

dom. Third prize is fabulous: the actual gold lamé cape worn by Rick Wakeman in his spectacular ice production of *King Arthur & His Knights of the Round Table*. The cape, which has been dry-cleaned, will fit most sizes (except small and medium) and is an essential accessory for any gigging keyboardist. Wear this to your next session and see the producer sit up and take notice!

With fantastic prizes like these, and a chance to take your place in the Horrible Musicians' Hall of Fame, there can be no excuse for any more pathetic procrastination, apathy, or downright disinterest. Get hammering away at those dreadful discords, and let's see the postcards coming thick and fast!

Okay, enough excitement. Let's get down to this month's musical example, not, alas, a transcription of Eric McWhirter's brilliant black-note extemporizations, but instead an extract from a piece of mine called "Golden Rain." This was inspired by Indonesian gamelan music, and is a good example of how quite complex textures can be built up over simple beginnings. I started out with the first bar of "gamelan 1," using a gamelan sample processed to play full length at all times. (Meaning that a chiming effect would be produced even if the keyboard were played staccato.) I then added the "gamelan 2" part,

using a somewhat thinner gamelan sample set at a slightly lower volume than gamelan 1. The interaction of the on-beat melody of gamelan 1 and the continual repeated off-beats of gamelan 2 provides syncopation, and enough rhythmic momentum to make thoughts of drum kits and the like unnecessary. It's nice when keyboard parts can double as both rhythm and melody lines. . . .

The song actually starts with the two gamelan parts unaccompanied, but gradually other parts and sounds join in, till a great whirling maelstrom of notes and rhythms is built up. The

nine bars you see scored are an excerpt from one of the choruses, where a vaguely classical chord sequence slips in under the chiming bells and makes the mood a shade more Western. The accented rhythm at the end of bar 9 —



— is a sort of musical exclamation mark, typical of the type of rhythm phrases used by gamelan orchestras to signal the end of a section.

Technical stuff: As both of the gamelan parts fall within a two-octave range, you can map them both out on a keyboard and still have an octave to spare. The koto and flute were both sampled, and keen-eyed orchestrators will be quick to see that, for the flute line, we had no choice: A real flute will not play lower than Middle C. The chordal part marked "keyboard" was, on our recording, some kind of breathy, gassy Korg Wavestation thingy, but will sound fine on a string patch (perhaps with a bit of piano thrown in to add definition). If you don't have a koto sample, try a clean, twangy guitar instead; this part seems to benefit from lots of modulation, to produce a Leslie-like wobble!

When you've finished dialing "Golden Rain" into your sequencer, or running through it with your band in preparation for tonight's important Holiday Inn gig, don't forget to put pen to paper and enter our great contest. Mark all entries "Dave Stewart's Horrible Chord Competition" and send them to *Keyboard*, 20085 Stevens Creek, Cupertino, CA 95014. And for God's sake, use conventional notation. Tapes are *not* eligible, even though they might give us a good laugh. Entries will be judged in three categories:

- (1) Cacophonous, brutally discordant, or just plain wrong.
- (2) Sleazy, greasy, smarmy, unpleasantly in-

"Golden Rain" is from the CD *Spin* by Dave Stewart and Barbara Gaskin, out now on Rykodisc, available from record shops with eccentric owners. Guaranteed free of horrible chords. You can contact Dave and Barbara via Broken Records, 18 Yeomen Way, Hainault, Ilford, Essex IG6 2RN, England.

sinuating, and insincere.

(3) Hatefully over-used, corny, quiz-show Muzak-style.

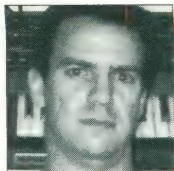
A special award of a pair of free Eric McWhirter concert tickets will be made for the most (or least) imaginative obnoxious chord

sequence, or vile-sounding cadence. Smart alecks who simply submit some of Dave Stewart's music will be automatically disqualified. ■

♩ = 135

Chords and notation in the score:

- Measure 1:** Cm (over E♭ bass)
- Measure 2:** C/E bass Fm9
- Measure 3:** B♭9/D bass E♭9
- Measure 4:** Cm7/Gbass A♭9
- Measure 5:** D♭9
- Measure 6:** Csus7



MIND OVER MIDI

CHRIS MEYER

PUMP UP THE VOLUME

IF IN MIDI HELL, PART 13: YOU'VE settled on the perfect MIDI sequence file to kick off your next business presentation. You're using General MIDI and one multitimbral synth — pretty slick. The tune grooves along during the opening graphics but then needs to fade down as you launch into your sales pitch. How do you do that? Reach over and turn down the volume control on the synth's front panel? Overdub the sequence with ten channels of volume messages and hope nothing chokes? Buy a MIDI-controlled audio mixer?

Thankfully, this scenario was anticipated by the creators of General MIDI last year as the specification neared adoption. The solution was to add a master volume message to the MIDI 1.0 spec — a message that duplicates the function of a volume control knob on a synth without upsetting the balance of the individual channels themselves.

Master volume seemed like such a good idea that the MMA decided to lay the groundwork for a family of messages to handle other similar parameters in the future. As a matter of fact, a master balance message was created at the same time and there has been some talk of trying to create master tone controls. For further flexibility, it was also decided to use two bytes to define their parameters, allowing over 16,000 levels of control instead of MIDI's typical 128.

Since these messages are to be directed at an entire instrument instead of a single MIDI channel, a channel-based MIDI continuous controller message would not do. Therefore, the free agent universal real-time sys-ex area inside MIDI was pressed into service, and a new subset called "device control messages" was created (the format of which is shown in Figures 1 and 2). These use the device ID in the universal sys-ex header to say what they are intended for. A "device" is commonly defined inside the MMA as a hunk of metal and plastic such as a sound module, effects unit, hardware sequencer, etc. One hunk is allowed to have multiple personalities, though (for example, a dual-transport tape deck or a computer loaded with different cards and running several different applications at once). Instead of MIDI's 16 channels, there are 128 device IDs possible, with the highest number (128) being a broadcast ID. All devices that hear the message are supposed to respond to it.

Implementing these messages will take some additional effort on the part of manufacturers.

For starters, many sequencers still do not record sys-ex messages of any description. It's true that sys-ex as a breed can be tricky to handle gracefully in sequencers, since the messages can be of virtually any length and format. So how do you let the user edit them? Not everyone likes dealing with long strings of hexadecimal, after all. That's why universal messages were

the physical volume control on the front panel, which might actually be digitized and processed by the internal CPU instead of actually sitting before the output jack. And we haven't yet mentioned any additional performance parameters in the patch! However, it's not as bad as it sounds. Usually only one or two of these change often while the sequence plays (the channel's volume is supposed to be used to help set the

mix level for each multitimbral part, and the expression pedal adds accents and such). The rest can be multiplied together and treated as one big volume knob. The trick is just being aware that all these exist.

Master volume and balance did not get approved by the MMA and JMSC in time to be added to the General MIDI System Level 1 specification. However, there is another insidious application for master volume and its future brethren beyond simple multimedia presentations: the virtual mixing console.

Take a good look at your mixer. Common elements are volume and pan controls per channel; a master volume control for the left/right mix, and effects sends and EQ settings per channel. But many MIDI instruments have equalization and effects already built in. Plus, channel volume and pan are already MIDI-controllable in most instruments. Throw in the new master volume command, and you have now "virtualized" all the parts of your mixing console into the sound modules themselves and put it all under MIDI control. All that's left is combining the

left/right outputs of all the modules (which can easily be done with simple line mixers and summers; some sound modules even have external summing inputs built-in). If you don't like the effects, EQ, or level control in the instrument itself, add dedicated MIDI modules that do these functions in line and assign them to the same controllers — and now you have a modular virtual mixing console to boot. Nothing is stopping "real" mixers from adopting the same MIDI control capabilities too (aside from a CPU, a UART, and a pair of 5-pin DIN connectors on the back).

Admit it; you knew some day someone would find a way to apply that hot new buzz-science "virtual reality" to MIDI.

Chris Meyer was recently re-appointed Technical Chairman of the MIDI Manufacturers Association. To prove a point, he sold his mixer and is actually trying to do everything in his studio via MIDI control.

Fig. 1. Master Volume message format (all bytes in hex).

F0 7F <device ID> 04 01 vv vv F7

| | |
|-------------|--|
| F0 7F | Universal real-time sys-ex header |
| <device ID> | ID of target device |
| 04 | Sub-ID #1 = Device Control messages |
| 01 | Sub-ID #2 = Master Volume |
| vv vv | Volume; least significant byte (LSB) first 00 00 = volume off |
| F7 | End of sys-ex message |

Fig. 2. Master Balance message format (all bytes in hex).

F0 7F <device ID> 04 02 bb bb F7

| | |
|-------------|--|
| F0 7F | Universal real-time sys-ex header |
| <device ID> | ID of target device |
| 04 | Sub-ID #1 = Device Control messages |
| 02 | Sub-ID #2 = Master Balance |
| bb bb | Balance; least significant byte (LSB) first 00 00 = hard left 7F 7F = hard right |
| F7 | End of sys-ex message |

created — so that there would be a known "manufacturer's ID" behind each sys-ex packet, and any additions would be known and well-documented through the MMA. Alas, to this day some software writers ignore them.

Second, the device ID is another new concept for MIDI musicians to deal with. Most musicians now have a handle on channels and modes, but the device ID is a little more abstract. Very few instruments have a way to change their device ID from the front panel.

Third, the devices themselves need to bone up on their math. In the case of volume, changes to the level can now come from up to six different places: a patch's programmed volume, the MIDI volume (continuous controller) that matches the patch's MIDI channel, an expression pedal controller that resides on that channel, a master volume command that matches the instrument's device ID, a master volume command that comes in on the broadcast ID (perhaps to fade down all instruments equally), and even

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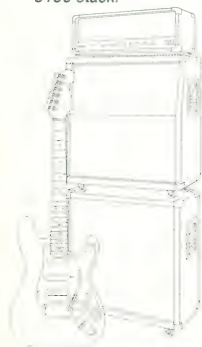
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Here's your chance to prove what a great guitarist YOU are! This summer, the editors of *Guitar Player* and a panel of distinguished judges will screen entries in the ULTIMATE GUITAR PLAYER COMPETITION. Winners will be selected in each of 12 musical styles, judged according to talent and ability. The winners will receive fabulous gear and other prizes. Their entries will be included on a compilation album. The Best Overall Player, chosen from among the 12 winners, will be flown to San Francisco this September 19th to play alongside the legendary players scheduled to perform at the *Guitar Player* 25th Anniversary ULTIMATE GUITAR CONCERT. Official entry forms are available at most music stores where *Guitar Player* is sold. If your favorite store doesn't carry *Guitar Player*, write to: Guitar Player Competition Entry Form, 20085 Stevens Creek, Cupertino, CA 95014 for an official entry form. Competition ends June 30th.

**ONE WINNER
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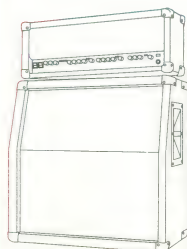
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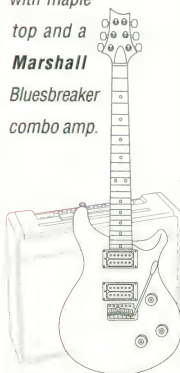
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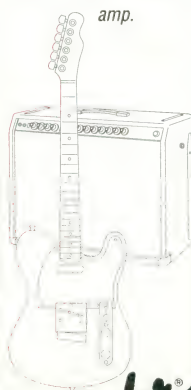
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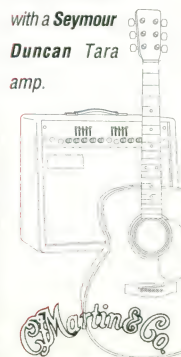
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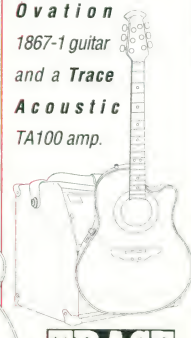
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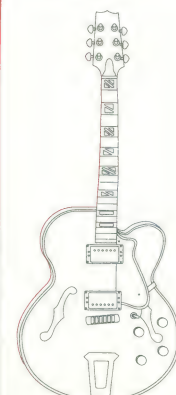
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ENTRY RULES & DETAILS

GRAND PRIZE. Round-trip air fare and hotel accommodations for one for a trip to San Francisco next September to participate in the *Guitar Player* 25th Anniversary ULTIMATE GUITAR CONCERT. Even if you don't win the top prize, you could be a winner in one of 12 musical categories, each with its own selection of prizes (each category valued \$2,000 to \$5,000). Sound good? Study all the rules and requirements carefully. If you're eligible, pick up an entry form at most music stores where *Guitar Player* is sold.

ELIGIBILITY. The competition is open only to amateurs, semi-pros, or aspiring pros just starting their careers. Established professionals are not eligible. *Guitar Player* will determine eligibility in its sole discretion.

You are not eligible if you have had an album released under your name on a record label with more than three albums in its catalog. An album is a 12" 33 1/3 RPM record or a cassette or compact disc of equivalent length. You will not be disqualified if you have only worked on multi-artist compilations, 45 RPM singles, or EPs.

You are not eligible if you did most of your guitar work as a regular member of a band whose records have appeared on a label with more than three albums in its catalog.

You are not eligible if you have played on two or more nationally broadcast radio or television commercial spots, more than one nationally distributed film soundtrack, or have been credited as a session player on more than six albums of any kind.

You do not have to be a *Guitar Player* subscriber.

CRITERIA AND JUDGING. The entries will be judged by the *Guitar Player* staff and a number of other guitar heavyweights and music industry executives, and our decision will be final. We're looking for talent, musical skills, taste, and creativity. Elements such

as speed and dexterity may or may not be advantageous; it depends on how they're used.

Since your *guitar performance* is of paramount importance, a studio quality recording is not mandatory. But since the winning tapes will be reproduced on a compilation cassette, we will at least make note of the sound quality. So whether you're recording in a high-tech studio or at home with inexpensive gear, try to obtain the best sound your equipment can provide.

Consideration will be given to the quality of the composition and possibly to the quality of non-guitar instrumental work in group performances. Great playing by others won't help you, but poor playing by others may hurt you. In group performances, the focus of the arrangement must be on the guitar. A three-minute tune in which the guitar takes a great 30-second solo and is barely audible the rest of the time will have little chance of winning.

THE MUSIC. We will consider music in the 12 categories listed below. You may play acoustic guitar (nylon, or steel-string), electric guitar, acoustic-electric, acoustic or electric bass, guitar synthesizer, or some combination of these instruments. Make sure the featured guitar parts are distinct in the mix.

Both guitar solos and group performances (either by groups of guitarists or by other types of ensembles) are acceptable. If an entry features more than one guitarist, one must be designated as the official entrant. You may perform unaccompanied, accompanying yourself by overdubbing, or with an ensemble.

RIGHTS AND AGREEMENTS. Since *Guitar Player* may not be able to reproduce a copyrighted work, it may well be advantageous for you to restrict your entry to work that is original or in the public domain. Although we will try to obtain permission, if you win with material for which we are unable to secure the rights, an alternative entrant's piece will be featured on the compilation tape.

By entering, you warrant that you meet all eligibility requirements specified here. You also agree that *Guitar Player* and others licensed by *Guitar Player* may use the composition and arrangement in a compilation tape and copy, sell, distribute, and/or broadcast the tape, all without payment of any royalty to you. This agreement covers only this one-time use. If you are the writer/composer, you will retain copyright. A formal written agreement to this effect will be required of you if you win. Also, you must grant permission for *Guitar Player* to circulate your recording to record companies and radio stations at our discretion.

HOW TO ENTER. Your 3-minute cassette-taped entry must be accompanied by an official *Guitar Player* Ultimate Guitar Competition entry form, available at no charge at most music stores that sell *Guitar Player*. If your local music store doesn't carry *Guitar Player*, you may write to GUITAR PLAYER COMPETITION ENTRY FORM, 20085 Stevens Creek, Cupertino, CA 95014 for an official entry form.

A label with your name, address, phone number, and the category in which you are entering must be firmly attached to the cassette itself (not to the cassette case). Also indicate on the label of the cassette itself the total time of the selection, and whether you used Dolby or dbx noise reduction. Send your cassettes fully rewound and ready to roll. Please don't record anything on the tape other than the selection you are entering. *Do not send your master. Materials will not be returned!*

On the official entry form, give us your name, address, phone number (again), the title of your selection, the name and location of the store where you received your entry form, and the category in which you are entering (again). Below this, list the personnel, the equipment (guitars, effects, amps, and recording gear), and the recording date and conditions (concert, home studio, name of pro studio, etc.). Please print carefully, or

ENTRY FORMS AVAILABLE AT MOST MUSIC STORES WHERE GUITAR PLAYER IS SOLD

type. At the bottom, list any recording, performing, and music education credits. Please do not send additional materials (letter, bio, photos, etc.).

Each individual or group may submit only one entry, and may enter in only one category. Total time for your entry must be three minutes or less. Entries longer than three minutes will not be considered, no matter how good they are.

SEND YOUR ENTRY TO: ULTIMATE GUITAR COMPETITION, *Guitar Player*, 20085 Stevens Creek, Cupertino, CA 95014.

Please do not call our office to check on the status of your entry, and please do not ask for an individual evaluation. We'll be listening to a great many tapes and will not have time to make individual assessments. We will notify only the winners in each category.

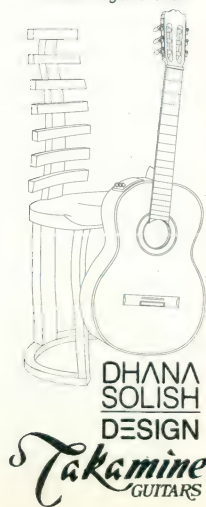
If your tape is selected as a category winner, you will be expected to provide your master cassette, DAT, or reel. It will be returned. Once again, all other tapes and materials will not be returned.

DATES AND DEADLINES. Entries must be received by June 30, 1992. Overseas entrants may send a self-addressed, stamped (U.S. postage or equivalent) envelope to *Guitar Player* for an official entry form. Be sure to mail overseas tapes early. The winners will be notified by July 30. A list of winners, by category, will be available upon written request at the conclusion of the contest. Good luck!

GRAND PRIZE!

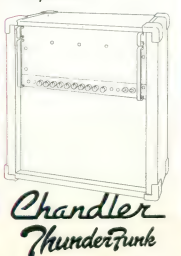
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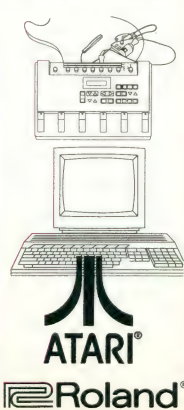
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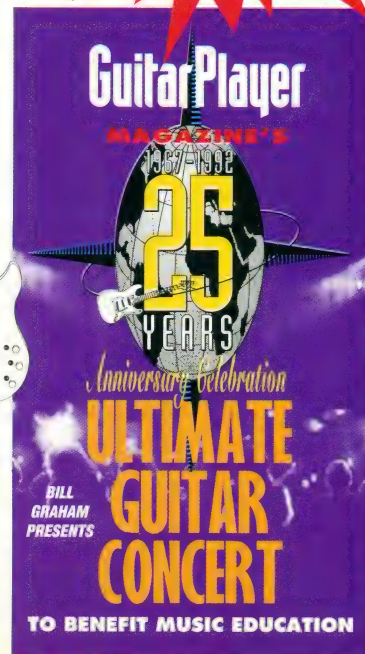
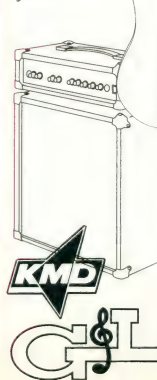
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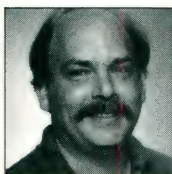
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DRUM MACHINE PROGRAMMING

NORMAN WEINBERG

A TRIP INTO THE REGGAE ZONE

REGGAE HAS BEEN AROUND FOR quite some time. Its feel, groove, and style continue to influence music in many genres. So, let's get right to it and look at some of the patterns and fills that make reggae cook.

In the most basic sense, reggae is a slow groove (quarter-notes moving from about 58 to 86 beats per minute) with the strong beats

on two and four. The "classic" reggae feel uses triple subdivisions, but reggae songs can also have a straight eighth- or sixteenth-note feel (more about this later).

Intros. Many reggae tunes begin with a short unaccompanied drum flourish that serves as a "call" to the rest of the musicians. Most often, these pick-up patterns are one or two counts in length and have strong lead-in characteristics. Example 1 shows three of these introductory

fills. The first two make use of 32nd-note subdivisions, a common rhythm in reggae fills. The third pick-up is a 12/8 figure that emphasizes

Norman Weinberg teaches percussion and electronic music at Del Mar College in Corpus Christi, Texas. His latest book, The Electronic Drummer, is distributed by Hal Leonard Publishing.

key



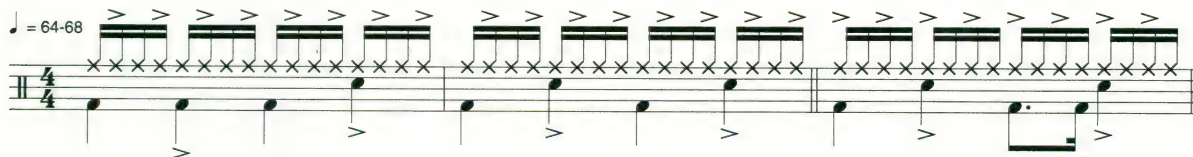
Ex. 1. Three common pick-up fills.



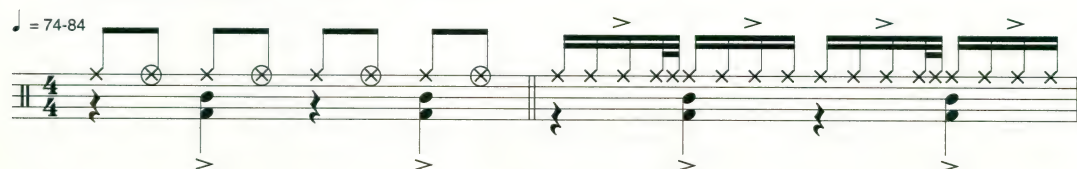
Ex. 2. A typical reggae groove in 12/8 followed by two fill patterns.



Ex. 3. Two reggae patterns that use duple divisions of the beat.



Ex. 4. Two up-tempo reggae patterns.



DRUM MACHINE PROGRAMMING

the triple subdivisions of each beat.

Patterns. Example 2 is a typical reggae groove in 12/8. As often happens, the cross-stick rimshot replaces the normal snare drum stroke. In terms of balance, the hi-hat strokes are fairly light while the bass drum and cross-stick notes are mixed hot. The following two bars illustrate some of the rhythms that drummers use in playing reggae fills. Notice that the notes outline the triple subdivisions of the beat, but are highly syncopated with plenty of off-beats. As for ending fills, don't be afraid to use the bass drum on beats other than two and four. Punctuate the end of a fill with a cymbal crash and a bass drum note on the downbeat of the following measure.

Example 3 shows two different patterns that use duple divisions of the beat. The first is a two-bar phrase with the accents played off-the-beat, which gives the pattern a slight lilt. The second pattern in this example has a slow rock feel.

More up-tempo reggae patterns can be seen in Example 4. Both patterns use the stylistic feature of stressing each "and" of the beat. In the first pattern, the stress is with the open hi-hat, while the second pattern uses accents and 32nd-notes to give the second half of each beat more energy.

Programming Hints. Getting the correct feel is an important aspect of programming reggae

grooves. Patterns in common time have even eighth-notes, but the inner sixteenth-notes have a slight lilt or swing to them.

On some drum machines, the swing feature only affects the second half of each beat. If your drum machine behaves in this socially unacceptable manner, adding the swing command to a steady stream of sixteenths will make the rhythm sound lumpy. Instead, program the patterns using eighth-notes in place of the sixteenths and then double the tempo. Be careful, as this may cause synchronization problems with other units. If you're programming on a software sequencer that offers a variety of swing levels, try using swing values between 52% (very subtle but noticeable) and 58% (more "in-your-face").

Sounds. As a general rule, bass drum and snare drum timbres in reggae are quite different from one another. The bass drum should be tight and thumpy. Its pitch is low and deep, but not especially resonant or full sounding. The snare drum should be high-pitched and bright. It's not surprising that many reggae patterns use a cross-stick rimshot instead of a normal stroke to exaggerate this tonal difference. Reggae drummers often augment their drumkit with other Latin-American instruments. It's not uncommon to find a reggae drummer using timbales and/or bongos instead of the tomtoms found on a more traditional kit. Feel free to use these instruments as a substitute for toms during fills.

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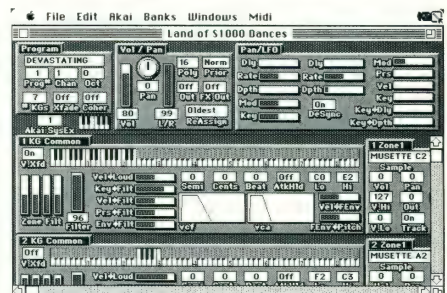
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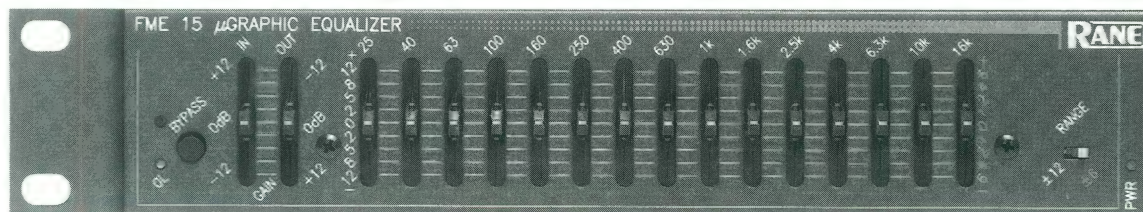


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TECHNOLOGY FOR POETS



JIM AIKIN

SAMPLERS, PART II: WHAT DO THE TECHNICAL TERMS MEAN

THE FIRST TIME YOU RUN INTO A sampler, it may seem like magic: Just stick a microphone in front of *any* sound, and you can play it on the keyboard. But what makes the magic possible is a hefty dose of good old-fashioned engineering. Last month we talked about some of the basic concepts in the land of samplers — mainly looping and multisampling. This month we'll take a look at some of the terms that are used to describe and evaluate samplers, and try to show what they mean. (If you want to know more, dig up a copy of the March '89 *Keyboard*.)

Bit Resolution. When sound is recorded in a sampler, it's turned into a stream of numbers. This process is called *sampling*. The numbers are then stored in computer memory. When you play a key, the sampler reverses the process: It reads the numbers that it finds in memory and converts them into an audio signal that you can send into an amplifier or mixer.

Now, the process of converting a sound into numbers is never 100% accurate — but we'd like it to be as accurate as possible. *Bit resolution* is a way of describing how accurate the sampler is. Essentially, the sampler is measuring the incoming sound wave over and over again, very rapidly, just the way you'd use a ruler to measure the level of water in a glass. Obviously, you can measure the water more accurately if your ruler has a mark every 1/32 of an inch than you can if only the quarter-inch points are marked. (Bear in mind that a computer can't record measurements like "sort of halfway between the marks" or "almost up to the next mark." All of the samples will be recorded as if they were exactly on one of the "marks" on the "ruler," no matter where they actually are.)

In the world of samplers, how close together the "marks" are on the "ruler" is described by the bit resolution. All other factors being equal, a sampler with a higher bit resolution will make better recordings; the "marks" will be closer together, so it will be able to measure the sound more accurately. Typical bit resolutions in the world of digital audio are 8-bit, 12-bit, and 16-bit. These days, the 8-bit sampler is largely obsolete, while 16-bit samplers are the professional standard, because they make cleaner, more accurate recordings than older 12-bit samplers.

You've probably heard the term *signal-to-noise ratio*. This is a way of talking about how clean and accurate an electrical signal

is. Without getting too technical, when there's less background noise in a signal, the s/n ratio is higher, and that's good. In samplers, the bit resolution is not the only thing that affects the s/n ratio, but it's a vital factor. The higher the bit resolution, the higher the s/n ratio can be. In other words, all other things being equal, a 16-bit sample has less inherent noise than an 8-bit or 12-bit sample, so it sounds cleaner.

Sampling Rate. A second important specification where samplers are concerned is their *sampling rate*. This is a measure of how fast

20kHz range, are suitable mostly for bass sounds, because the high frequencies will not be recorded. Many samplers allow you to select the sampling rate each time a new sample is recorded.

If you talk to a techie about sampling, you may hear the term *Nyquist frequency*. This is the highest sound frequency that a sampler can record (in theory, at least). The Nyquist frequency is equal to half of the sampling rate. In practice, a sampler's ability to record high

| Sampling Rate | Bit Resolution | Seconds (mono) per Mb |
|---------------|----------------|-----------------------|
| 32kHz | 12 | 20.833 |
| 32kHz | 16 | 15.625 |
| 44.1kHz | 12 | 15.117 |
| 44.1kHz | 16 | 11.338 |
| 48kHz | 12 | 13.889 |
| 48kHz | 16 | 10.416 |

Fig. 1. The relationship between sampling rate, bit resolution, and total available sampling time for some common sampler configurations. If your sampler doesn't match any of these examples, you can figure out its available time using the equation given in the text.

their circuits work during the process of recording the sound. A sampler with a faster sampling rate can record extremely high frequencies better than one that has a slower sampling rate. The sampling rate is measured in kilohertz (abbreviated kHz). One Hertz equals one cycle per second, and "kilo" means "thousand." So anything that runs at a rate of 1kHz is running at 1,000 cycles per second. That may sound fast, but it's not fast enough for sampling. It turns out that samplers have to work very quickly indeed to get good samples. The standard in professional sampling rates is either 44.1kHz (the rate at which CDs are recorded) or 48kHz (the rate at which many DAT players work). But it's possible to get very acceptable samples of many sounds with a lower sampling rate, in the neighborhood of 32kHz. Lower sampling rates, in the

frequencies stops a bit short of the theoretical Nyquist limit. So a 44.1kHz sampler (whose Nyquist limit would be 22.05kHz) will usually record frequencies up to about 20kHz. Not coincidentally, the highest frequency that most people can hear is about 20kHz. And that's when they're young. As we get older (or are exposed to damaging volume levels) our ability to hear high frequencies diminishes.

Memory Size. As we said, after a sample is taken it is stored in the sampler's internal memory. So the third important number where samplers are concerned is their memory size. This memory is called RAM (Random Access Memory), and its size is measured in kilobytes

Jim Aikin is just a really swell guy. Don't believe anything those assistant editors tell you.

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TECHNOLOGY FOR POETS

(thousands of bytes, usually abbreviated K, sometimes Kb) or megabytes (millions of bytes, abbreviated Mb or Meg).

What's a byte? Are we really going to have to get into this? Not in detail, no — but if you want to know whether your sampler has enough memory in it or not, you need to know the difference between bits, bytes, and words (also called *sample words*). A byte always consists of eight bits. A bit is the smallest possible unit of numerical information; it consists of either a one or a zero. So a byte is a number like 0111 1010, or 1001 0000. But the size of a sample word depends on the bit resolution, which is why we started out by talking about that. A 16-bit sampler uses 16-bit words to store sounds, while a 12-bit sampler uses 12-bit words. So as you can see, a 16-bit sampler needs two *bytes* of memory to store every *word*. A 12-bit sampler needs 1-1/2 bytes for every word.

From this, we can see that if a 16-bit sampler has 2Mb of memory, it can store 1Mb of sample words. A 12-bit sampler with 2Mb could store 1-1/3Mb of words.

But that's a pretty boring statistic. What we'd really like to know is how many seconds of *sound* we can record. In order to figure this out, we have to go back and look at the sampling rate. If a sampler's sampling rate is 48kHz, that means it records 48,000 words

every second. If it's a 16-bit sampler, then it's recording 96,000 *bytes* per second. Still with us? What if it's a 16-bit *stereo* sampler? In that case it's recording 96Kb for the left audio channel and another 96Kb for the right channel, which comes to 192Kb of memory getting filled up for every second of recording. If the sampler has 1Mb of RAM, its memory will be entirely filled when we've recorded 5.2 seconds of stereo or 10.4 seconds of mono sound.

Here's the formula. The "words per second" value is the same as the sampling rate, and the number of bytes per word is 1 for 8-bit samplers, 1.5 for 12-bit samplers, and 2 for 16-bit samplers.

memory in bytes ÷ (words per second x bytes per word) = number of seconds

Some common examples showing how samplers stack up at various rates and bit resolutions are given in Figure 1. Incidentally, the calculations in this chart are based on the idea that 1Mb is equal to exactly one million bytes. This is not true for all samplers. Because of the way computers work, a kilobyte is normally 1,024 bytes rather than 1,000, and a megabyte may be 1,024 kilobytes. If this is true of your 16-bit sampler, then the formula will show that you can store 10.922 seconds of 48kHz mono sound in 1Mb of memory.

Next month: What is MIDI? ■

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POWER SEQUENCING

CRAIG ANDERTON

ASK MR. SCIENCE

I'VE BEEN GIVING A LOT OF SEMINARS lately, and during the question and answer segment, sequencing-related questions often crop up — which seems like an excellent reason to devote a column to some common inquiries.

I record improvisational acoustic piano music that doesn't follow a fixed time, yet I'd like to use a sequencer to control effects and automated mixdown moves in the studio, as well as do a few overdubs of sampled sound effects and such. I don't want to play to a click track. Any solutions? I've heard of boxes that follow whatever beat you give it and create a MIDI sync track.

Although such boxes exist, they're not necessary for this application (assuming you have a device that can generate MIDI data such as the JLC Cooper FaderMaster or the Niche Automation Station; even the controllers on a keyboard will do). First, stripe your tape with sync code that your sequencer can follow. Set the sequencer to a moderate tempo (e.g., 120 bpm) and select slave mode so that it will sync to tape. Roll tape, and record your mixing or signal processing moves into the sequencer. Be sure to turn off the sequencer's metronome so you don't drive yourself nuts hearing clicks that are out of time with the music.

In this mode, the sequencer acts as an event recorder. When you move a fader (or other MIDI controller), the sequencer records it, and always plays the move back at that point on the tape. Don't be concerned that changes may not happen exactly on the beat; 480 ppq resolution at a tempo of 120 bpm gives a timing resolution of around 1ms. Since an event can be recorded every millisecond, any move will never be more than 0.5ms off the beat. If you can move a fader fast enough to where that matters, let's get together and talk about how life on Krypton was before you moved to earth.

When I record a sequence in my keyboard's onboard sequencer, I can hardly record more than a couple of verses before I get a "memory full" indication. Yet I haven't played as many notes as the spec sheet says the sequencer is capable of recording. What's wrong?

Make sure that aftertouch (pressure) is disabled. If you play the keys hard and generate lots of aftertouch as you record a track, those events fill up memory rapidly. Remember, a note requires only two events — note-on and note-

off. Aftertouch generates a stream of events

for as long as you're pressing the keys; polyphonic aftertouch generates even more. Other controllers, such as master volume, modulation, and pitch-bend, also send lots of data but are harder to generate accidentally.

This also applies to computer-based sequencers. Even though you may not run out of memory, too much pressure data can clog the MIDI data stream and interfere with timing.

I do a lot of 30- and 60-second commercials that combine taped acoustic tracks with virtual MIDI instruments. Recently, some of my SMPTE track became corrupted and I lost about 10 seconds in the middle of a spot; the sequencer goes crazy before re-synching. I don't have gear to regenerate the SMPTE track. Help!

Just re-record a new SMPTE track over the old one. Most modern tape recorders have sufficient timing stability that you shouldn't notice any short-term drift. However, you'll almost certainly need to change the sequence's SMPTE start point to have the virtual tracks match up with the acoustic ones.

If you can only change the start point in whole frames (i.e., you can't use subframes), synching to the new SMPTE track could create timing differences as great as 15ms between the virtual and acoustic tracks. If this is a problem, set the sequence start point slightly ahead of the beat and use a digital delay line to delay the SMPTE track on its way to your sequencer or MIDI interface. Adjust the delay time until the virtual and acoustic tracks line up.

How can I sequence realistic-sounding guitar parts?

The easiest way is to find a MIDI guitar player! Although you will probably need to spend time cleaning up glitches, and possibly shifting individual tracks (or even notes) to compensate for timing problems, a real guitarist is your best bet.

If you must sequence guitar parts from a keyboard, check out the August '91 Power Sequencing column, "Hot Guitar Tracks," for information on how to play idiomatically. There are also two hardware helpers: the Oberheim Strummer or Altech Systems KeyFrets SE (Altech Systems, 122 Faries Indl. Pk. Dr., Shreveport, LA 71106). Both remap what you play on the keyboard to guitar voicings, in real time.

Finally, don't forget that sending a keyboard's guitar part through a guitar processor (like a Scholz Rockman) or guitar amp can also work wonders in getting realistic sounds.

This comment came from a manufacturer's representative:

I really resent your making a big deal about small timing differences, like 10ms and 20ms. So what if a keyboard is 10 or 20ms late in responding to data? Ringo Starr never hit things right on the beat, and that didn't seem to bother people. I don't see any reason why you have to make people feel bad about the gear they bought by pointing out that it may be a little late in responding to data, especially since this doesn't make any difference anyway.

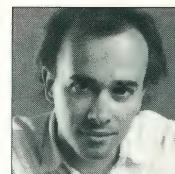
I strongly disagree that musicians can't discriminate between subtle timing differences. As pointed out in my January '92 column, most musicians I've talked to consider machines with fast-rising envelopes "punchy," even if they're not aware of timing specifics. The reason I became interested in timing was because it was audibly obvious that something strange was going on with the timing of sequenced instruments, and it seemed like a good idea to track down the source of these anomalies.

Granted that many musicians don't play exactly on the beat, but many times that is a musical decision, not random time-shifting. (In fact, WC Music Research has analyzed drum patterns for different styles of music, and offers companion disks for the Cubase sequencer that include various "groove templates.") Musicians may take liberties with the beat, but they expect that playing a note will cause it to play at that instant — witness how many guitarists are disturbed by pitch-to-MIDI-based guitar synthesizers because the low E typically plays about 20ms late. Any guitarist can hear that amount of delay; some guitarists can hear, and object to, even shorter delays.

Many people are aware that due to technological limits, keyboards cannot respond instantly to incoming MIDI data. If manufacturers won't provide timing specs, then someone else should. [Ed. Note: See Keyboard Dec. '91 and Jan '92 for timing tests on a number of popular synths and sound modules.] Far from being an attempt to make people "feel bad" about their equipment, the object is to help people get various pieces of gear working together properly so they don't encounter frustration or disappointment. Once we know what the problems are, we can figure out how to overcome them without wasting time on trial-and-error approaches. ■

Craig Anderton lives his life surrounded by 3.5" diskettes. He is very glad they are not carnivorous and don't need to be housebroken.

MAKING TRACKS



BRENT HURTIG

PATCHBAYSICS

C LIMBING OUT FROM UNDERNEATH your mixer, you wipe the dust balls off your knees and smile. It's been weeks since you last patched up your studio, and you're in the mood to lay some new tracks. You thread the tape deck, push up the faders, hit PLAY, sit back, and . . . nothing.

Back on your knees. Lo and behold, thanks to the rat's nest of cabling, you've patched the deck's outputs to its inputs. Sure, this is the way to run a studio — *not*.

There really is an easier way. When Alexander Graham Bell made the first telephone call ("Mr. Watson, come here; I want you."), he enjoyed a straight-wire connection between his telephone and Watson's. But as soon as the world's telephone population grew to three, a method was needed to route calls between different telephones. The solution was a telephone switchboard, or patchbay.

Our little history lesson has everything to do with your studio. In fact, the multitude of 1/4" phone connectors hanging around your studio are direct descendants of the switchboard cables of yore. And the concept of a switchboard — a place where a variety of signals can be routed to a variety of destinations — is exactly what a studio patchbay is all about. Once you're wired and patched, you'll never have to get on your knees again. Or at least, not until you need to install a new mixer.

Of course, you don't have to be in the commune-with-dust-balls level of studio hell to benefit from a patchbay. Do your effects devices outnumber your mixer's (or ministudio's) effects sends? Do you regularly repatch the connections between your mixer and tape deck just to record or play back tracks? Do you find yourself regularly repatching any other gear, such as synths, reverbs, or equalizers? If you answered "yowza" to one or more of these questions, then a patchbay (or as the Brits say, a *jackfield*), may be just the ticket.

Have No Fear. Many otherwise confident musicians find patchbays a tad intimidating. Perhaps it's the myriad of cabling; perhaps it's a matter of right-brain people dealing with left-brain issues. However, patchbays are actually easy to understand and use — particularly if you think of a patchbay as a simple "extension" of the input and output jacks already on the back of whatever synths, samplers, tape deck(s), and mixer(s) are attached to the patchbay.

The typical patchbay is a 19" rackspace panel, with rows of female connectors (also called *jacks* or *points*) on the front panel, and associated labels. Most patchbays that aren't

built into mixers have just an upper and lower row of connectors, though occasionally you'll see ones with four or more rows. (Multiple bays are used to handle additional points.)

The number of inputs and outputs you decide to "bring up" on the patchbay determines how many patch points you need. As we'll learn next time, it's not necessary to have every bit of equipment up on the bay; for most project studios, one to three 40-point bays are sufficient.

About Face. The bay's front face is where the action takes place: All routing of signals is done via the front-panel connectors, using short patch cords (or "jumpers") to direct a signal out of one connector and into another.

The rear panel is a different story. First of all, cables running to and from equipment are connected semi-permanently to the rear only; all day-to-day repatching is left for the front panel. Secondly, some patchbays require the equipment cables to be soldered or wrapped tightly onto the points (or pins) that extend from behind the front-panel jacks. Other styles have a group of 6' to 10' cables pre-wired onto the rear points; these wires terminate in either a multipin connector or a telephone-style "punchblock" (to which equipment cables are also attached).

Now, if all this talk of soldering guns and punch blocks is triggering your primal fight-or-flight instinct, fear not. Most project studios (and a growing number of commercial studios) use fully modular patchbays, with plug-in connectors on both the front and rear panels. Integrating one of these patchbays into your studio is simply a matter of plugging in the correct cables in the correct places. Forget about solder; you don't even need a plastic pocket protector to get patched.

By the way, if someone offers you a hot deal on an older patchbay, make sure it has clean, silver-colored plated connectors, not brass jacks. Brass oxidizes like crazy and requires cleaning every few months. (If you're already brassed out, clean it with Brasso or Cramolin.)

Patchbays come in three flavors, distin-

guished by the type of connector used: TT, 1/4", and RCA. There's a bit more to each of these choices than meets the plug.

TT. The vast majority of studio patchbays use TT connectors — which are miniature versions of the standard 1/4" phone plug (hence their name, an acronym for *tiny telephone*). Here are some TT facts guaranteed to keep you on the edge of your seat:

- High-end mixing consoles typically are equipped with a built-in TT patchbay, which serves as the patchbay for the entire control room. Sometimes you'll see stand-alone TT patchbays in addition to or instead of a console patchbay.
- Some studios need hundreds of patch points. The big advantage of TT bays is that they're small. Up to 48 or even 52 jacks can be fitted on each row across a single 19" rack.
- Since the outputs and inputs of most pro equipment are balanced, TT bays are available in "balanced" versions, with tip/ring/sleeve (TRS) conductors to carry the high (+), low (–), and ground signals. Unbalanced two-conductor TT bays are also available.
- Almost all TT-style bays require rear-panel connections to be soldered, wire-wrapped, punched, or fitted with a special connector. (Bays built into consoles usually terminate on the back of the console in female multi-pin connectors.)
- Because of all of these factors, TT bays are expensive. For a single 96-point bay, prices range from \$350 (unwired) to over \$1,000 (rear-wired)

Continued on page 132



This Furman PB-40 patchbay looks harmless enough, doesn't it?

Brent Hurtig is an editor and consultant in San Francisco. He's writing a new book about far-off and dangerous travel, inspired by being treed by a rhinoceros in Nepal. No kidding.

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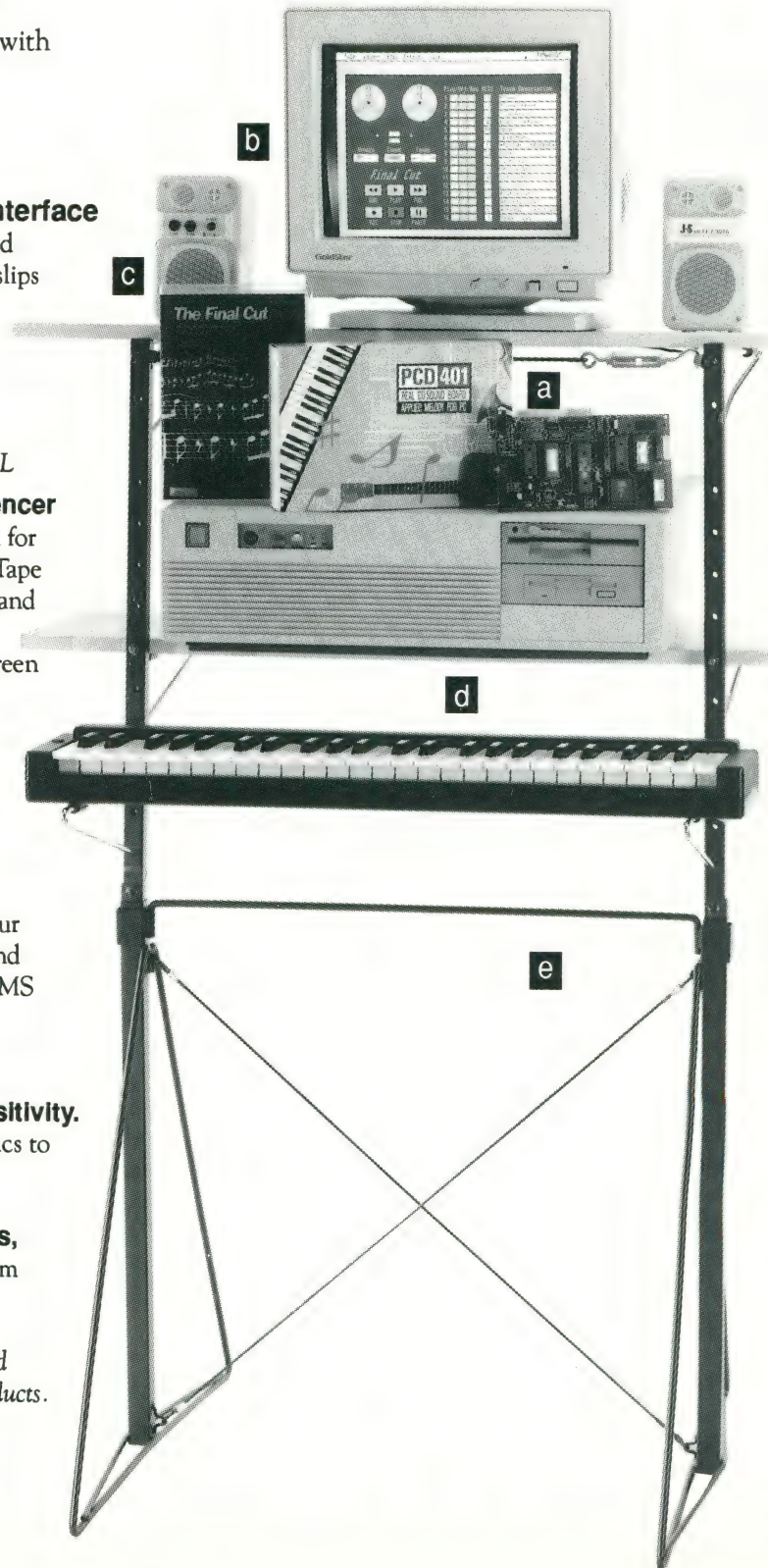
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STUDIO ELECTRONICS P-FIVE RACK-MOUNT PROPHET-5

By Michael Marans



BLAME IT ON DR. DARTER. THAT'S right. You could have had a concise appraisal of Studio Electronics' P-Five, a chopped, rack-mount version of the classic Sequential Circuits Prophet-5 analog synth, in the same issue as the reviews of their Oberheim OB-8 and Moog Minimoog rack modules. But *nooooo!* The Doctor claimed he had better things to do, like getting a magazine out the door. Pretty flimsy excuse, if you ask us.

Regardless, the Prophet-5 was a monumental milestone in the annals of synth history. So even though the timing of this review is not quite as opportune as we would have liked, it nonetheless deserves to come to print.

As you may recall from the Feb. '92 article, Studio Electronics specializes in ripping the guts

PROS & CONS

Pros: Classic analog synth sounds. Greatly expanded MIDI functionality.

Cons: Only five-note polyphonic. Requires very deep rack for mounting.



When it comes to nasty, biting timbres, it's hard to beat a Prophet-5. But who wants to cart around a pre-MIDI, five-note dinosaur? Studio Electronics says you don't have to. They'll gut your Prophet keyboard and repackage the innards in a rack-mount chassis. And they'll add enough MIDI whizbangs that you might just forget about the limited polyphony.

out of synthesizers near and dear to our hearts and carefully placing said innards into rack-mount cases. The theory: Analog synthesizers are a necessity of life, but most pros don't feel like carting around dinosaurs just for the sake of a few fat sounds. By having these behemoths cut down to size — four rack spaces in the case of the P-Five — the hot studio players can easily call up their favorite sounds of yesteryear without having to fork over the day's earnings in cartage fees.

Of course, some doubting Thomases (or Thomasinas — gotta be P.C.) may wonder why anyone would want to resurrect a five-note-polyphonic instrument, especially considering that doing so is not exactly an inexpensive proposition. There are two answers to that question. First, the Prophet-5 sounds like nothing else — except, of course, another Prophet-5. It has an unmistakable edge to it; quite different from the smooth, sweet tone of a Moog or the rich, fat sound of an Oberheim. No wimpy whisper tones here; from the late '70s to '82 or '83, the Prophet-5 was the instrument of choice when it came to down and dirty brass, biting pads, and cutting, edgy bass sounds. And with its poly-mod function, which allowed the filter envelope and/or oscillator B to be used to modulate oscillator A's frequency and pulse width as well as the filter cutoff frequency, the instrument's ability to create devastatingly pow-

erful sound effects was unparalleled.

Now for reason #2: Studio Electronics has managed to significantly increase the MIDI functionality of the instrument. (You may remember that the original Prophet-5 was not a MIDI instrument. MIDI only became available in versions 3.0 and higher. Even then, the implementation was rather basic.) The new functions include velocity response (routable to loudness, VCF cutoff, VCF resonance, and poly-mod envelope amount), aftertouch response (routable to VCF frequency, VCF resonance, oscillator mod, and poly-mod envelope amount), and

mod wheel and pitch-wheel control of VCF frequency, VCF resonance, pitch, and poly-mod envelope amount. Pretty hip stuff.

It's not sinking in, is it? We're talkin' about a Prophet-5 with *velocity response*; with filter resonance controlled from aftertouch. Want to have some fun? Try adjusting the filter cutoff from the pitch-bend wheel while you're pitch-bending. And as if all this wasn't hip enough, all of these assignments are programmable per patch.

These are all functions that practically every other synth on the planet will do nowadays.

STUDIO ELECTRONICS P-FIVE

Description: Rack-mount version of Sequential Circuits Prophet-5 polyphonic analog synthesizer.

Features: Two oscillators with sawtooth, triangle, and variable pulse-width waveforms. Two four-stage envelope generators. One LFO. Noise generator. Assorted modulation routings. MIDI control over filter cutoff, filter resonance, poly-mod envelope amount, and volume level via velocity, aftertouch, and wheels.

Dimensions: 19-1/2" x 18-1/2" x 7". 18 lbs.

Suggested List Price: \$2,195 with owner-supplied Prophet-5. \$3,395 when instrument is provided by Studio Electronics.

Contact: Studio Electronics, 18034 Ventura Blvd. Ste. 169, Encino, CA 91316. (818) 776-8104.

STUDIO ELECTRONICS P-FIVE

But to be able to do them on a Prophet-5 is simply outstanding. Studio Electronics has given the Prophet-5 a whole new set of expressive capabilities, ones that allowed us to approach programming the instrument in entirely different ways than we ever had before. We're jazzed.

A couple of other items of note: The P-Five is very deep; you'll need a big rack if you expect to be able to mount the unit without it sticking out the back. And despite the increased MIDI options (including one we didn't mention earlier, bulk sys-ex patch dumps), the instrument is only capable of producing pitches in the 61-note range from C1 through C6. When you play notes that fall outside of that range, the pitches wrap around to notes within the range. Not a problem if you're using a 61-note controller, but something to be aware of if you're using one with 76 or 88 notes. You'll also find that the two-digit LED display has been retained on the rack version. And lastly, the Prophet-5 was never really noted for its oscillator tuning stability. It still isn't.

In our review of Studio Electronics' OB-8 rackmount, we complained that some of the original instrument's functions had not been included in the rack version. Talk about a situation reversed in spades! That the company has been able to take an instrument that was great to begin with and make it even greater should be considered quite an accomplishment. Congrats on a job extremely well done. ■

MAKING TRACKS

Continued from page 129

to a multipin connector or punchblock). You can pinch some piasters by buying the raw components from a patchbay specialist. My favorite company is David Carroll Electronics [805 Gilman St., Berkeley, CA 94710; (510) 528-8054]. You'll need to be solder-savvy, but DCE is happy to provide advice.

RCA. RCA-style patchbays are the bottom feeders in the Patchbay Kingdom. RCAs are also known as *phono* plugs — not to be confused with 1/4" *phone* plugs. They're found on the inputs and outputs of cassette mini-studios and "semi-pro" -10dBu level recorders and mixers. Fun facts:

- RCA bays are for unbalanced two-conductor operation only.
- Most RCA bays have two rows of 16 or 20 across (32 or 40 points total), and are equipped with RCA jacks on the rear, for quick connection.
- RCA jacks and plugs are relatively flimsy, and won't hold up to repeated plugging and unplugging as well as TT or 1/4" connectors.
- An RCA bay is an okay choice for people who have already invested a lot in RCA-to-RCA cabling. The bays are quite cheap (less than \$140 for a 40-point bay), as are

RCA jumper cables. Overall, however, I give RCA patchbays a thumbs down; a 1/4" bay is almost always a better choice.

1/4". For most project studios, this format offers the best of all worlds. Here's why:

- Most 1/4" bays are two-conductor (unbalanced). If you have a lot of balanced gear, however, you can find a three-conductor (TRS) balanced version.
- Like RCA bays, 1/4" bays usually come with two rows of 16 or 20 points across (32 or 40 points total).
- The jacks and plugs are as sturdy as TT connectors, yet they're much less expensive. (A 40-point bay with 1/4" connectors front and rear typically costs under \$140.)
- Don't worry about using a 1/4" bay with XLR- or RCA-equipped recording gear: As long as the patchbay-end of the cabling terminates in the appropriate 1/4" connectors (balanced or unbalanced), everything will be groovy. If you're one of those people with reams of RCA-to-RCA cables, Furman builds inexpensive custom bays with 1/4" points on the front and all (or half) RCAs on the back.

Next time, we'll learn how to integrate a patchbay into an existing studio. We'll also learn how to get "normalled." And you thought this column was for deviants only. ■

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KB 5/92

ROLAND JV-80

SYNTHESIZER

By Jim Aikin

APEARANCES CAN BE DECEIVING. With its sleek, streamlined profile, the Roland JV-80 looks like a bit of a lightweight when you set it up on the same rack with a couple of other synthesizers. Most instruments have a more brawny cross-section. But make no mistake — this axe combines great sounds with some very forward-looking features. It stacks up quite well against other synths in the under-\$2,000 bracket, and even sports a couple of important items that are missing from its big brother, the slider-laden JD-800.

While the JV-80 doesn't use exactly the same sound chip as the JD-800, it's the newest example of Roland's next-generation technology, which spotlights incredibly fast response times, a higher signal-to-noise ratio, and a more sparkling high end than the old D series instruments. The JV actually has four more voices than the JD (28 instead of 24), excellent built-in drum samples, and a better controller implementation. What it lacks, mainly, are auxiliary outputs.

Here's another comparison, quick and dirty (manufacturers hate 'em, but we know readers like 'em): How does the JV-80 stack up against E-mu's new Proteus keyboard (Keyboard Report, March '92)? Filters: A lot better. Effects: Not nearly as versatile. Multi-channel setups: More powerful and easier to program. Auxiliary outputs: Much worse. ROM wave expandability: Much better. Drum kit: More programmable. Modulation: Not as powerful. Cost: \$400 more. Sounds: Too subjective to call. Flip a coin, or go down to the store and listen to them both.

Overview. The JV-80 can use up to four of its 28 oscillators in each patch, which means

that the keyboard polyphony varies from seven notes (with four-oscillator patches) to 28 (with single-oscillator patches). That's in single mode, of course; in multi mode, you can stack patches up to seven deep on a single key. One enhancement you'll notice right away is that you can sustain notes that are sounding one patch while choosing a new patch. Ensoniq and a few other companies have had this feature for years, as have Roland's home-oriented instruments, but this is the first time we've seen it in a pro-oriented Roland synth, and it's a welcome addition.

Also reminiscent of Ensoniq, and actually an improvement over Ensoniq's patch select buttons, are the four tone on/off switches mounted at the center of the front panel. These serve a couple of functions. First, the LEDs in them show you immediately how many oscillators (that is, tones) are used in a given patch, so there's no mystery about how many voices of polyphony you're working with. Second, you can switch individual tones on and off while playing. Just as when you select an entirely new patch, sustaining notes won't be affected, but the notes you play after making the switch will be. Thus you can have as many as 15 different versions of a patch instantly accessible — and the convenient center-panel positioning of the buttons means you can get at them quickly with either hand.

But that's only the start of the real-time expressiveness that the JV makes available. It has a bank of eight sliders, four of which can be used

in single patch play mode to make instant changes in the relative balance of the oscillators, their tuning, filter cutoff, and some other parameters. In multi mode, all eight sliders can be used, though the parameters that they can address are somewhat more restricted. Unlike the JD-800, the JV doesn't transmit data from these sliders or buttons over MIDI (with a couple of exceptions that we'll get to below), so they're strictly for real-time control. But it's certainly a forward-looking and very musical layout.

Speaking of multi mode, the JV features 16 user-programmable multitimbral performances, each of which can split or layer seven patches at once; an eighth section, which can be layered with the others if desired, is designed for percussion. Zones can overlap, and several of the parts can be assigned to the same MIDI channel if desired. Best of all, each performance can contain a separate set of eight MIDI transmit zones, which don't have to correspond to the zones playing the internal sounds. This setup makes the JV-80 a terrific master keyboard.

If you flip the JV-80 over, you'll see a little metal plate that can be taken off by removing eight Phillips head screws. This plate gives access to a slot into which owners will be able to plug an 8Mb sound ROM expansion. (There will be no need to take the instrument to a service center and pay for the installation.) Roland currently plans two of these 8Mb blocks, which will cost around \$350. They can be used in addition to the PCM cards that plug into the back panel. We definitely like seeing this kind of expandability engineered into the machine. Incidentally, the plate also gives access to the long-term memory backup battery, so you'll be able to replace that yourself as well when the time comes.

Sounds. With 128 factory preset patches and another 64 that are user-programmable, the JV puts plenty of musical material at your fingertips. The factory presets contain plenty of great-sounding variations on familiar themes — banks of acoustic and electric pianos, strings, brass, mallet percussion, organs, guitars, basses, and lead synth tones — but frankly, there's almost nothing in the way of creative or vibrant new hybrid sounds. The material in the user bank contains quite a bit of spillover in the same categories — extra basses, strings, piano, and so on. While you'll also find some fresh patches here, such as "Voicery Pizz," "Utakata" (a choir with rolled bamboo), and "DooWah Diddy" (which sounds a lot like its name), on the whole it seems clear that the JV has been targeted primarily at musicians whose main need is for a basic meat-and-potatoes sound.

Which is a shame, because the instrument will do a lot more than this. The raw waveforms are very well done, with a wide variety of smoothly looped samples in all of the usual categories. You'll find a very serviceable acoustic piano that's bright and has plenty of punch, four good electric pianos, a variety of electric and acoustic basses, a couple of analog synth pads



ROLAND JV-80

Description: Digital synthesizer with built-in effects.

Keyboard: Five octaves, C to C. Velocity, release velocity, channel pressure sensing.

Memory: 128 ROM patches, 64 RAM patches, 32 ROM performances, 16 RAM performances, two 61-key ROM percussion layouts, one RAM percussion layout. 4Mb internal waveform ROM. Expandable to 14Mb with 8Mb internal board and 2Mb card.

Voice Architecture: Up to four tones per patch. Each tone has two LFOs, switchable high/lowpass filter with resonance, three four-stage envelopes, independent effects send levels, three modulation sources with four destinations each. Velocity cross-switch and crossfade between tones. Polyphonic portamento with programmable time or rate.

Features: Eight-way splits and layers with independent zoning for internal patches and MIDI transmission. Eight data entry sliders. Front-panel transpose on/off and reverb and chorus bypass switches. Copy utilities, reversible pedal polarity. Left-hand "presence" slider adds velocity-sensitive treble boost. ROM cards are compatible with JD-800.

Interfacing: PCM and patch data card slots. Sustain pedal in, two sweep or switch foot pedal ins, L/R stereo audio outs, stereo headphone out (all 1/4"). MIDI in/out/thru.

Dimensions: 39" x 12" x 3-3/8". 19 lbs 13 oz.

Suggested Retail Price: \$1,895.00.

Contact: RolandCorp US, 7200 Dominion Circle, Los Angeles, CA 90040. (213) 685-5141.



with pulse width modulation, a stellar muted trumpet, metallic loops, single-cycle electronic tones, and on and on. We could find a few little flaws if we tried hard: The flute loops have a touch of vibrato, the harp is way deficient in overtones, and we really think it's about time they axed that resampled D-50 bell patch, which is showing its age. But on the whole, the selection is terrific. You can use any drum wave you like as an attack transient, and the waveform list ends with 14 reverse-playback versions of selected percussion waves, suitable for special effects.

We were pleased to find that in many cases, the unused (switched off) tones in the factory patches contain useful variants that you can switch on in performance — octave doublings, attack transients, and so on.

An advance peek at a prototype version of the Pop memory expansion board knocked our socks off. This expansion is likely to turn the JV-80 into a must-have for a lot of musicians. There has never before been an off-the-shelf synth with 12Mb of waveforms to choose from. By the way, the board includes 145 additional patches that use the waves. These can't be called up as a bank; they have to be loaded one at a time into the edit buffer, after which you can store them in any of your 64 RAM locations if desired (or store a bunch of them on a RAM card). While not an ideal system, this does at least give you access to some useful material.

Obviously, the board has a great piano. Two of them, in fact (or six if you count the versions that have the same waves but alternate sample split points). One of the pianos is warm and muted, and the other is bright. Other keyboard-type sounds include a very funky Clavinet and a buzzy electric grand (you know, the one manufactured by the company whose name begins with a 'Y'). You'll find a couple of wonderful Hammond organs, complete with percussion and key click. The banjo is beautifully realistic, but the pedal steel guitar doesn't have enough high end to suit our ears. You'll find not only obscure plucked and percussion instruments but such odd, interesting items as a flutist singing in unison with the flute note (a common technique in jazz soloing). The solo winds are exquisite, especially the clarinet. The breathy tenor sax is the first sampled sax we've heard in a long

time that didn't make us want to lose our lunch. The brass section samples are exciting. The solo violin and cello, unfortunately, were recorded with vibrato; this makes them almost entirely useless, in our opinion, as the vibrato rate changes from note to note, and neither rate nor depth can be controlled. The cymbals are very smoothly looped, so you can use the filter and amplitude envelopes to make them as short or as long as needed.

A couple of problems were audible on the prototype board; we hope these will be fixed before the production units come off the assembly line. The electric sitar sample in the octave below Middle C was noticeably flat, as was the solo violin sample a fifth above Middle C. There also seemed to be some intonation matching problems in the choir samples. And two of the shakuhachi samples were quite a bit louder than the other two.

Patch Parameters. The voice architecture of the JV contains no huge surprises, but it's fully functional and has a few extras. The filters can be either lowpass or highpass, and have resonance. There are two LFOs per tone. The filter, pitch, and amplitude envelopes have four levels and four times each. One big advantage over the JD-800 is that each of the four tones in a patch can now have its own pan setting and effects balance. Thank you, Mr. Roland!

The real-time modulation routings of the JV are much improved too. Three sources are allowed — modulation lever, aftertouch, and "expression," which can be either a front-panel control slider, a footpedal, or both. For each source, you can program up to four destinations and depths. Possible destinations are pitch, filter cut-off, filter resonance, volume, depth of either LFO as applied to either pitch, filter, or amplitude, and rate of either LFO. What's more, these routings can be individually programmed for each tone in a patch. Thus your footpedal could cross-

fade between two tones, add vibrato to one tone while adding resonance to another, and so on.

Seven different velocity response curves are provided, and you can select a different curve and velocity amount for each filter and amplifier. Velocity cross-fades between tones can be programmed, as can velocity cross-switching (up to four-way velocity zones). Panning can be set individually for each tone, and a pan/key follow

amount is provided. Dynamic panning via modulation is not supported, which is a little strange when you notice that sustaining notes can pan smoothly as you edit the pan position parameter. In other words, the sound engine will do dynamic panning, but there are no modulation routings that can be applied to it.

Among the extras: Polyphonic portamento. This feature offers a choice of constant-rate and constant-time modes, as well as a switch that controls whether you always hear the effect (normal mode) or hear it

only while holding one key and playing others (legato mode). Then there's the ability to switch sustain pedal response on or off for each tone in a patch. An "analog feel" parameter adds a bit of random-speed vibrato to each tone. The LFOs can fade either in or out during a note, with both delay time and ramp time parameters. Fractional keyboard scaling of oscillator pitch is supported, for percussive attack transients.

You'll also find a mysterious parameter called "FXM." This adds a bit of grunge to the tone, which could be useful, perhaps, once in a blue moon, for a sax growl tone that's only audible at high velocities. There's no way to envelope or otherwise modulate the effect, and no way to get the modulating waveform to track the keyboard pitch.

Individual tones can be delayed with respect to your keyboard playing — and you can choose whether delayed tones will be played even after key-up, or whether they will sound only while

PROS & CONS

Pros: Up to eight MIDI transmit zones for master keyboard applications. 8Mb ROM sound blocks will be user-installable. Powerful real-time control.

Cons: Rudimentary effects processor. No auxiliary outs. Many real-time control gestures can't be transmitted over MIDI.

ROLAND JV-80

you're sustaining the note. This is quite a useful little feature, especially if you want to have a slapback echo and also some reverb on the same patch. You can dedicate a tone to the echo and save the effects processor for the reverb. A third mode, called "playmate," supposedly measures the time lag between your first and second notes and uses this for the delay time, but we were unable to get this feature to do anything musically reliable. Finally, you can set the delay to "key up" for harpsichord release clicks and similar effects.

The JV-80 lets you edit some parameters (tone level, filter cutoff, tuning, and attack and release times, for example) from play mode. These changes can then be stored in memory

if desired. The nice thing about this layout is that you can see the values for all four tones displayed on the LCD at the same time; in edit mode, all of the same parameters can be displayed, along with many others. While the use of sliders in play mode can add to the possibilities for real-time expression, two limitations should be noted: First, these sliders don't send MIDI, so moves can't be recorded. And second, the control over the filter cutoff frequency is noticeably stepped. If you want to drive filter cutoff while playing, you're better off using the left-hand control slider, which can be programmed to do this more smoothly.

The instrument's keyboard transmits release velocity, and this can be used in two ways. When a voice is set to mono mode and you're playing a trill-type pattern by holding one key

while you strike and release a second key, the release velocity of the key that you lift will be used as the "attack" velocity of the sustaining note as it reappears. In addition, release velocity can be used to modulate the release times of the envelopes.

Effects. The weakest aspect of the JV-80, in our opinion, is the effects processor. This contains two sections — reverb (or delay line) and chorus. You can program the send level separately for each tone for each of the two sections, and also the dry signal level. This capability is a distinct improvement over the JD-800, in which all four tones were processed identically. Also, you can send the chorus output direct to the output jacks, or route it into the reverb section.

So far, so good. However, the effects themselves are rudimentary: Three different chorus types are offered, with programmable output level, rate, depth, and feedback settings. All three seem very similar; they do stereo pitch-shifting. But the range of the rate and depth parameters is subtlest for chorus 2 and widest for chorus 3. There are six different reverb algorithms, with programmable time and output level parameters. The longest times available are real short, and the algorithms all sound a little springy. Instead of reverb, you can choose one of two delay algorithms — straight delay down the center, or a ping-pong from left to right. With these, a feedback amount parameter is provided in addition to time and level.

To be fair, the effects are quite sufficient to enhance the sound of the JV-80, which is what effects are supposed to do. And it's nice to see separate chorus and reverb bypass switches on the front panel. Even so, it's pretty obvious that this is the section where they cut a few corners to bring out such a powerful instrument at such a reasonable price.

Percussion Layout. While it only provides one RAM percussion layout in internal memory (and another on a card), and while no layering of percussion sounds is allowed, the JV gives you quite a bit of control over the timbre of the waveform that is assigned to each key. You can program the effects send and dry signal levels, filter, the filter and amplitude envelopes, filter and amplitude velocity response, output panning, and even pitch-bend depth for each drum sound. No less than 31 mute groups (hi-hat cutoff relationships) are provided. A random pitch amount can be programmed; this can be up to an octave, but the most useful settings seem to be the two lowest ones — 5 cents and 10 cents. Velocity can control the pitch envelope amount. The percussion sounds can't use LFO modulation, which is kind of a shame, but you can't have everything.

Multi Performance Mode. When it comes to multi mode operations, which Roland calls Performances, the JV-80 is a prime contender for the middleweight crown. As we mentioned earlier, each performance can receive and/or transmit on up to eight MIDI channels, with whatever zoning and layering of the keyboard you might need. You can transmit MIDI volume and pan control to an external module from each transmission zone using the eight sliders, which

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lets you use the JV to record complex mix moves into a sequencer. And here's a tip: There's no law that says your receiving module has to use pan controller messages for panning. This feature of the JV could be used for many types of modulation, depending on how your modules can respond to controller data.

Each zone, internal and external, can be given its own velocity curve, velocity sensing amount, and maximum velocity (for compressing the velocity range). By switching some internal zones to local-off, you can use them strictly for sequencer playback. Each external zone can send a MIDI program, volume, and/or panning change when the performance is called up. You can switch the external zones on and off in performance. What's especially nice is that if you switch a zone off, the JV will sustain any notes that you're currently playing, and stop them appropriately when you lift the keys. This lets you do the switching at the moment that's easiest musically without causing undesirable side effects such as hanging or truncated notes.

Internal zones can be given a voice reserve, which is very helpful when you're sequencing a dense passage and don't want notes stolen. Curiously, the internal zones can't be given velocity ranges, so velocity cross-switching is not possible at this level. (It can be programmed into a single patch.)

The transposition and coarse tuning parameters for the zones can cause some confusion. If you're not careful, you can easily get into a situation where you record from the JV into a sequencer and on playback hear something in a different octave from what you played. As the owner's manual suggests, the best approach is to keep all of the transposition parameters set at zero, and use the coarse tuning parameter to change the octaves of the sounds if you need to. For live applications, the MIDI transmission can be transposed separately from the internal sound, which is bound to come in handy once in a while.

MIDI Implementation. The JV's two sweep/switch footpedal inputs and its left-hand control slider can be programmed to send any MIDI controller number you like, which is a super feature for master keyboard applications. One point worth noting, however, is that while these sources can be set to internal-only, MIDI only, or internal plus MIDI transmission, they will only affect the internal voices if they're set to send a type of message that the internal voices can respond to — volume, pan, modulation, bend up, bend down, or controller 11.

The pedals can also be used for program up or program down commands, if you like. In this mode the JV generates its own bank select messages, which is quite helpful.

Here's a minor oddity. The individual tones in a patch can be programmed to respond to or ignore incoming MIDI volume messages, which is very nice. However, the MIDI volume data will be applied only to notes being played by incoming MIDI note messages. What you play on the keyboard will sound at full volume regardless of the level of the MIDI volume. While

unusual, this may be the preferable design for some applications. It could also screw you up once in a while, such as when you're trying to record a part into a sequencer while the part fades out at the end of the song.

Miscellany. We happened to be testing the JV-80 with C-Lab's Notator sequencer, which sends out a packet of stuff (sustain pedal off, pitch wheel recenter, mod wheel zero, etc., for all 16 MIDI channels) every time you hit the stop button. The JV-80 consistently responded to this by reporting "MIDI Communication Error," which could mean that its input buffer overflowed. This caused no musical problems, fortunately — and when we tried sending the JV a massively thick datastream clogged with five channels of pitch-bend, mod wheel, and aftertouch at once, the instrument responded flaw-

lessly and the error message didn't appear. So don't worry, be happy.

Conclusions. We can recommend the JV-80 without hesitation to anybody who is looking to buy their first synthesizer, or who wants to significantly expand their tone palette at a reasonable price. Its multi-channel keyboard zoning and flexible controller transmission make it ideal for live use. More demanding sequencer users may feel pinched by the lack of auxiliary outputs, and the effects processor is certainly not anybody's idea of a powerhouse — but these limitations have to be balanced against plusses like the ROM waveform expandability, the controller input routings, release velocity sensing, and the instantly switchable tone on/off buttons. At the risk of sounding like a broken record, Roland has another winner on their hands. ■

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DOEPFER LMK3

MASTER KEYBOARD CONTROLLER

By Mark Vail

IN THEORY, 88-NOTE WEIGHTED keyboards are great . . . until you have to carry one to a gig. They tend to be really big and heavy, especially if you carry them in heavy-duty keyboard cases. Like an acoustic piano, most 88-note keyboards are best suited to staying right where they are at the moment.

But not always. Sometimes a manufacturer can squeeze a lot into a surprisingly tight space. That's what German engineer Dieter Doepfer did with the LMK3, whose case is barely bigger than the keyboard it encloses. The result is a long, narrow, portable master keyboard controller with a decent assortment of control possibilities, all packed into a roadworthy, rein-



forced flightcase, and available at a price that's competitive.

Background. In the Aug. '90 issue of *Keyboard*, we rounded up seven master keyboard controllers, ranging in price from the Cheetah MS7P's \$1,425 to \$2,795 for Roland's A-80. The range of capabilities provided by these controllers was considerable, although each had its own strong points and quirks.

Doepfer's LMK3 ranks right up there among these "established" master keyboards in terms of power. It has some features that none of the

units in the roundup had, and lacks a few things as well. In price, it falls within a couple hundred bucks of the Cheetah. Fact is, the LMK3 far outclasses the two-year-old Cheetah MS7P in terms of keyboard feel, on-board controllers, and roadworthy construction.

Roadworthiness is a serious consideration, both for the traveling musician in terms of confidence and convenience, and for the manufacturer in terms of production cost. Only one of the keyboards we reviewed in Aug. '90 was built into a road case, the \$2,500 Elka MK88. We know of one manufacturer, nearly ready to ship a new master controller, who scratched production of a road-case version because of the cost. In other words, the LMK3 is one of a rare breed.

Physically Speaking. Thanks to its skinny profile, the LMK3 looks like the longest master keyboard you'll ever see . . . and it is, just over five feet in length. It's hefty too, but nowhere near as heavy as keyboards like the Yamaha KX88 or Roland A-80. All of the LMK3's cabinet edges and corners are protected by aluminum siding and corner pieces. For long-distance shipping, trucking, or air-freight purposes, a pair of finger-tightened screws can be inserted into the underside of the instrument to secure the internal mechanisms.

The manufacturer normally ships the LMK3 with a single, center-balanced carrying handle. Given the instrument's length and weight, we would have preferred two decently spaced handles. One grip does leave you with an extra hand for carrying something else, but we'd rather be able to control what we're carrying and not lose all the feeling in one arm after lugging the keyboard in from the truck, up a flight of stairs, and onto the stage. We're told two handles can be supplied rather than one, depending on the customer's preference.

A removable snap-down lid protects the keyboard and control panel during transportation. Unfortunately, there's nothing to protect the jacks and connectors on the rear panel; these are flush with the back surface and prime spots for foreign substances like mud and water to invade the LMK3 should you carelessly set the instrument down in a puddle in the middle of a rainstorm. The manufacturer tells us they are working on a recessed connector panel for

DOEPFER LMK3

Description: MIDI master keyboard controller.

Keyboard: Eighty-eight weighted, spring-action keys, A to C. Eight overlapping split zones. Velocity, release velocity, and channel pressure sensing; 32 velocity and eight pressure response curves. Velocity cross-switching.

Memory: Sixty-four setups, each with eight zones. Stored with each zone are lowest and highest key number, MIDI channel, transposition amount (± 63 half-steps), volume level, program change number, velocity- and aftertouch-response curves, and transmission of controller data, including eight user-assignable controller numbers.

Features: Mod and pitch-bend wheels, two sliders, data-entry knob, 24 function buttons. Transmission of specific program change number and volume level can be enabled/disabled for each zone in a setup. Transmits MIDI start, stop, continue, and clocks, with programmable tempo (50-254 bpm in 2-bpm increments). Panic button for transmission of global all-notes-off command and controller initialization routines. Adjustable velocity-response reduction for black keys. Pressure-to-pitch-bend function with adjustable bend sensitivity and direction. Controller remapping. Eight-character preset naming. Backlit 16-character by 2-line LCD with contrast and illumination controls. Reinforced flight case with removable lid. Bulk sys-ex librarian for Atari ST included; optional editor/librarian software for Atari ST (neither copy-protected).

Interfacing: MIDI in and out, 1/4" sweep footpedal in (tip/ring/sleeve), 1/4" footswitch in (tip/ring/sleeve). XLR and conical +7-12V power inputs. (AC power adapter included free with units shipped to U.S. only.)

Dimensions: 61-1/8" x 10-1/2" x 4-1/8". 49-1/4 lbs.

Suggested Retail Price: \$1,595.00. LMK3 Screen-Editor for Atari ST: \$75.00.

Contact: Doepfer Musikelektronik GmbH, Lenbachstr. 2, Graefelfing, Germany. 49-89-85-55-78. Fax 49-89-854-16-98. Distributor outside Europe: Cedos Corp., 426 E. North St., #209, Waukesha, WI 53188. (608) 277-8305. Fax (608) 277-8307.

Long and skinny, fairly heavy, and ready to travel, Doepfer's LMK3 is a pretty tough cookie in terms of construction. Nice keyboard action too.



future versions of the controller.

The complement of connectors on the rear panel is rather sparse. There is only one MIDI out. We've been spoiled by master controllers that have four outputs, like the A-80, Kawai's M8000, and the Cheetah. Extra MIDI outs will often give you access to more MIDI channels (like 32 or 64). On the other hand, Yamaha's KX88 only has one MIDI out, and you'll find it in more setups than you will any of the other master keyboards. Besides, since Doepfer designed the LMK3 in a road case, its most satisfied buyers will probably be musicians on the road, where fewer cable connections mean faster setup time.

The LMK3's MIDI in is primarily for communication with Doepfer's MIDI-dump software (included with the LMK3) and the optional LMK3 Screen-Editor (see below), both of which run on the Atari ST. Although data received at the MIDI in will be routed to the MIDI out, it will not be merged with data generated by the LMK3 itself. If you transmit data into the LMK3's MIDI in from another keyboard or sequencer, the LMK3 will pass the data through to its MIDI out, but playing the LMK3's keyboard at the same time can result in stuck notes and other errors. Master controllers that offer MIDI merging — the list of which includes those from Cheetah, Kawai, Roland, and Yamaha — allow more flexible setup possibilities.

There are 1/4" inputs for a momentary footswitch and a sweep-pedal foot controller. The footswitch input, which also accepts a tipping-sleeve plug connected to a dual footswitch, is designed for use with the normally closed type of switches like those from Roland and Yamaha. The manufacturer claims that all LMK3s shipped after February will feature an automatic polarity switch that will allow you to use either a normally open or closed footswitch.

Finally, the LMK3 gets its power via one of two different input jacks — one XLR, one conical — for connecting an AC power adapter. Since Doepfer exports the LMK3 to numerous countries, the company kept its manufacturing cost down by depending on generic external power supplies available in each importing country. (Only U.S. purchasers will get a free power supply with their LMK3.) It just bothers us that this rugged, roadworthy keyboard relies on a "wall wart" with a flimsy little power cord. If the power adapter supplied with your unit has a conical plug, you'll probably want to wire your own XLR connector. An XLR plug will stay snugly in place, whereas an accidental tug on the AC cord can easily dislodge a conical plug, and you don't want to lose power in the middle of a song. Oh, we almost forgot: There is no power switch on the LMK3.

The Keyboard. Each of the LMK3's white keys is a generous 6-1/4" in length, which is actually longer than many grand piano keys. Each white key measures 7/8" across, which is 1/16" less than those on a grand. (The gaps



Nice sliders, nice display, but bad data knob, bad. The wheels are reversed too, but Doepfer promises to put the pitch-bend wheel on the left of the mod wheel on future models.

between keys are wider on the LMK3, so octaves measure the same as on a grand piano.) The plateau of each black key measures 3-7/16" x 3/16". In any event, as far as size is concerned, the LMK3 keys nearly match those of an acoustic piano. The actual feel of the keyboard, however, is quite different than a piano. The action is really quite good — somewhat resilient, but quick and responsive — and almost everyone here at *Keyboard* grew to like it, once they got past the snooty "it doesn't feel like a piano" stage.

Doepfer infused the LMK3 with a healthy supply of 32 velocity curves, including linear, logarithmic, exponential, inverse, and fixed-output curves. That's an impressive number of curves, especially considering the most offered by the master keyboards in our Aug. '90 roundup were the Elka's 19 and the Cheetah's 16. We were also glad to find that the LMK3 is able to transmit any MIDI velocity value, unlike some inexpensive synthesizer keyboards that limit you to eight or 16 different velocity levels. Another bonus it has is release velocity, something supported by lots of master controllers, but not the KX88 . . . nor a majority of today's synths and samplers.

Control Panel. Past the left end of the keyboard is a 9-1/2" x 6" control panel. By positioning the control panel at the end of the keyboard, Doepfer could maintain a very slim profile in the instrument. Many players might prefer

to have it above the keyboard, where it would be more visible while you play the keys. However, this would increase the depth, and therefore the weight, of the LMK3's case, and perhaps its cost too. In any case, the panel is a bit out of the way, so be prepared to stretch for it.

Laid out across the control panel are two sliders, a data-entry knob, three rows of eight pushbuttons each, eight LEDs, a backlit LCD, and two wheels, one spring-loaded and normally dedicated to pitch-bend, the other free-turning for generating modulation or some other type of continuous controller data. Peculiarly, the relative position of the wheels on our review unit is opposite from every synth we've ever worked with: The mod wheel is on the left of the pitch-bend wheel, rather than the right. The manufacturer reports that the wheel positions on LMK3s shipped after February will conform to the standard.

What's potentially worse than the reversed wheels is their placement, period. Some players like to rest their hand on the left end of the keyboard case and use their thumb to control the wheels. It's physically impossible to perform this way on the LMK3. If you try to rest your hand to the left of the wheels, you might accidentally depress buttons on the control panel, which could seriously disrupt your music. So if you're used to playing this way, you'll have to adjust your wheel technique to adapt to the LMK3's wheel placement.

PROS & CONS

Pros: Eighty-eight-note weighted-action. Portable, roadworthy case. Eight-way keyboard zoning with velocity cross-switching. Economical for master keyboard.

Cons: Single MIDI out. Questionable placement of wheel controllers. No increment/decrement buttons.

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DOEPFER LMK3

The LMK3 has two programmable sliders — more than the Cheetah and Kawai, which have none, but not as many as Akai's MX76, the A-80, and the KX88, which have four each. The LMK3's sliders have a fairly healthy 2-1/4" throw and move freely, but with a good amount of resistance. Unlike the A-80, which transmits the current slider levels whenever you call up a preset — data that you really don't want in your MIDI stream — the LMK3 transmits slider data only when the sliders are moved.

We weren't too thrilled with the data-entry knob. It can be assigned as a continuous controller, but we wouldn't use it that way because it's awkward to handle. It's also awkward for programming. Unlike a stepped data knob that turns freely without boundaries (such as that found on the E-mu Proteus), the LMK3's knob turns smoothly from about 8 o'clock to 6 o'clock. There is no detent to signify a zero point; you have to monitor the display continuously to verify the current value, and selecting a specific value within 128 increments takes some dexterity. We'd be a lot happier if there were increment/decrement buttons.

Operationally Speaking. When it comes to programming interfaces, all master keyboard controllers aren't even close to being equal. You'll find really bad interfaces on the Yamaha KX88 and Cheetah MS7P, because they're each limited to four-digit displays. Although the

LMK3 has a much more substantial 32-character backlit LCD, its operation isn't real straightforward, because the functions of unlabeled control-panel buttons are determined by the current operating mode. You'll need a map in the beginning to navigate the system.

There are eight LMK3 operating modes, corresponding to labeled function buttons, which are found in the top row on the control panel. One "mode" is simply the panic button, which transmits an all-notes-off message — plus values of zero for functions like pitch-bend, mod wheel, breath control, sustain, and pressure, and a value of 127 for MIDI volume — over each of the 16 MIDI channels, in order to shut off any stuck notes or reset specific functions in your synths that might be responding improperly. (In case you don't want to subject your MIDI system to a global all-notes-off command, you can transmit note-offs for specific channels one channel at a time.) While this panic feature is a necessity (not to imply that the LMK3 causes stuck notes, but it's possible to do something that would lead to that result), it would really be more convenient if the LMK3 could perform it without leaving the current menu or display. That way, should you run into trouble while programming an LMK3 preset, you wouldn't have to perform several additional keystrokes to get back to where you were. Also, transmitting MIDI volume messages of 127 to all your synths might not be the best thing, if some of them should be playing at low-

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er volumes. Of course, you can reset the proper volume levels by reselecting the appropriate preset, provided you specify that the programmed volume level be transmitted when the preset is loaded.

Other LMK3 modes are for programming presets and global functions, controlling playback of a sequencer, selecting presets from memory, and transmitting single program changes over a specified MIDI channel. Typically, once you've entered a programming mode, the bottom two rows of buttons allow access to parameters within that mode. In cases where parameters have only two possibilities (i.e., on or off), their related buttons serve to alternately toggle the parameter between the two states.

You can define eight independent zones across the LMK3's keyboard. (That's twice as many as an A-80 gives you, and you only get two on the KX88.) Independently stored with each zone are its lowest and highest keys, the MIDI transmission channel, a transposition value (± 63 half-steps), a velocity-response curve, an aftertouch response curve (one of eight, including linear, logarithmic, exponential, and inverse curves), a program change number, and a not-to-be-exceeded MIDI volume level. (The latter will keep the volume of a MIDI channel at or below the specified level; even if you floor your footpedal, the LMK3 won't transmit a higher volume value than you stipulated.) In addition, you can enable or disable specific

controller functions for each zone. Should you choose, each zone can independently transmit its program change and volume setting when its associated preset is loaded from memory.

Want to assign one or more controller sources to transmit a different type of MIDI data, for instance using a slider to transmit aftertouch data? The LMK3 allows you to define up to eight hardware controllers to transmit via any controller number, from zero to 127. The only limitation is that a single hardware controller can only be assigned to one task within the same preset; in other words, you can't program slider 1 to transmit volume on one MIDI channel and modulation amount on another.

We're somewhat disappointed that the LMK3 offers no inverse scaling of volume. For example, we'd like to control the volumes of zones 1 and 2 with slider 1 so that at the slider's mid-point, zones 1 and 2 play at the same volume, then zone 1 gets louder and zone 2 quieter as we push the slider up, and vice-versa as we push it down. Sorry, no can do with this keyboard, nor any other master keyboard controller that we're aware of.

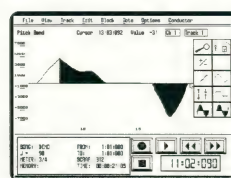
All of these functions are programmed in the Split and Controller Assign/Activate modes. The former mode, in which the key range, transposition, response curves, program number, and volume are set, is easier to deal with than the latter because you can directly select the zone you're programming using the second

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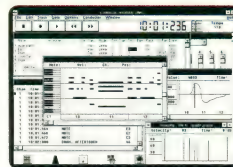


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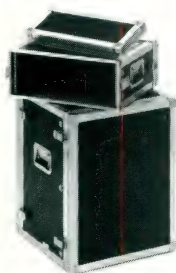
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DOEPFER LMK3

row of function buttons. The manufacturer has simplified some of the programming routines in Split mode. For example, when you select either the low- or high-note parameter in defining a keyboard zone, you can enter a key value (displayed in three-digit decimal, rather than key name and octave number) by playing it on the keyboard, which is quicker and more accurate than using the data-entry knob. If you start from the low-key parameter, the LMK3 will advance to the high-key parameter as soon as you play a note on the keyboard. You can also set the transposition value by playing two notes on the keyboard; the first note serves as the reference, and the second note's relationship to the first note determines the transposition amount. For instance, if you play a C followed by a G above it in the same octave, that zone will be transposed up a fifth (seven half-steps). This is quite a convenience, especially because of the way the data-entry knob works when setting the transposition value for a keyboard zone. Instead of getting a value of zero at the data-entry wheel's 12 o'clock position, transposition values range from +000 at the most counter-clockwise position to +063 at 12 o'clock, and -000 from just right of 12 o'clock to -063 at the most clockwise position.

As you probably figured, you assign specific controller sources to destinations of your choice in Controller Assign/Activate mode. Here, it isn't at all convenient to jump from one zone to another. The quickest way is by first going to Split mode, selecting the zone you want to program, and then returning to Controller Assign/Activate mode. If you press the Controller Assign/Activate button again, you can reassign the destination of each controller's data for the entire preset.

When we first set up the LMK3, we had trouble getting it to work with our E-mu footpedal. We incorrectly assumed that the single footpedal input would be defined as External Controller 1. It turns out that Doepfer offers a second footpedal input as an option. However, as far as the LMK3's operating system is concerned, the standard input is actually designated as External Controller 2.

Some very specialized tasks are handled in the Parameters/Name mode. For example, you can globally scale the velocity response of the black keys so that they don't generate as high velocity values as the white keys, the theory being that it's easier to play the black keys harder because they are physically higher than the white keys. Wow! There's also a cool velocity-split parameter wherein you set a velocity threshold (from zero to 127), and any notes whose velocity exceeds the threshold will be transmitted over the next higher MIDI channel. (If you use channel 16, notes with velocities over the threshold are transmitted over channel 1.) Each zone has its own velocity-split threshold.

The LMK3 allows you to chain presets together, regardless of their actual numbers, for incremental selection with a footswitch. If you

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want to step through presets 2, 54, 23, 16, 10, etc., all you need to do is enter the next preset number in each preset. That is, for our particular preset chain, you would enter 54 as the preset-pointer in preset 2, 23 in preset 54, 16 in 23, and so on. This system isn't as flexible as those in MIDI instruments that let you enter all the preset numbers in a string, because you can't repeat a preset within a chain without copying it to different locations in memory. If you use, say, three different presets at various times in each song you play in your live act, it's conceivable that you could run out of preset room before you have all your songs covered.

Besides allowing you to reassign controllers in a variety of ways, the LMK3 can respond to pressure by transmitting pitch-bend data instead of aftertouch. You can instruct the LMK3 which way and how far a zone's pitch should travel in response to pressure on the keyboard. Each zone can be independently set to respond to pressure as either aftertouch or pitch-bend data, but the value you assign to the aftertouch-to-pitch parameter is global and in effect for all presets in the LMK3's memory. (Darn, we want some pitches to bend up and others down.)

You can initiate an LMK3 bulk dump by hitting a button in Parameters/Name mode. Unfortunately, if you're searching for a specific parameter and you inadvertently hit the bulk-dump button, the LMK3 starts the process and you can't stop it. Some elderly MIDI devices have been known to flip out when they're hit with a massive system-exclusive dump, so such activity is best kept under firm control. Doepfer should alter the software so that a second button push is required to authorize the deed.

Like most serious master controllers, the LMK3 can transmit MIDI clocks, as well as start, stop, and continue commands. (Clocks are only transmitted when either the start or continue buttons are depressed; although this is the preferred mode of operation, some older Roland sequencers need to receive clocks at all times.) Tempo ranges from 50 to 254 bpm, but the resolution is limited to even numbers. Thus, you can't dial up a tempo of 89 or 123 bpm; you'll have to settle for an even number above or below it. The tempo — as well as whether clocks and start, stop, and continue messages are transmitted — is stored with each preset. All you have to do to operate your sequencer is enter Realtime/Master-Channel mode, which converts some of the function buttons to start, stop, and continue controls.

LMK3 Screen-Editor Software. If you've got an Atari ST, the optional LMK3 Screen-Editor certainly provides a much improved programming interface over the LMK3's own two-line display and button-intensive operating system. You can squeeze up to four banks of LMK3 presets (256 total) into the Atari at once, but the program depends on the LMK3's edit buffer, so you can only edit one preset at a time.

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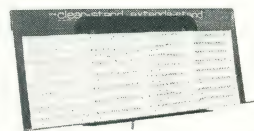
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DOEPFER LMK3

ually transmit a single preset or entire bank of presets to the LMK3 at your leisure. You have to actually save any change that you want to keep in a preset slot in the LMK3 (or on disk) or you'll lose revisions as soon as you change presets.

The Edit Zones screen graphically presents many of the preset parameters for editing. Stretched across a window in the top half of the screen is a 127-note (C to G) representation of a keyboard. This window also contains a table of the low and high notes (by note name and octave number), transposition offset, velocity and pressure curve selections, and velocity cross-switch threshold for each of the eight zones. To the left of the table, miniature keyboard replicas illustrate the current note range of each zone.

Two boxes fill up the remainder of the Edit Zones screen. One box has a volume slider for each zone, as well as a numeric readout of the zone's volume, program change number, and MIDI channel. The other window shows the hardware controllers (wheels, sliders, etc.) above columns of on/off buttons for enabling/disabling those controllers in each zone.

Using Screen-Editor, there are two ways to program the keyboard range of a zone: The best way is to select the preferred zone in the controller-assignment window, then click on the low and high notes on the big keyboard display.

Or you can click and hold on a low- or high-note parameter of a zone in the range table, then drag your mouse left to decrement or right to increment the current value. This same method is used to change any numeric value not supplemented with a graphic representation, which isn't always convenient because some parameters have such a wide range you have to move the mouse quite a ways. It also can be difficult to maintain true accuracy in the selection of a particular value. We'd be happier if this method was supplemented with the ability to click on a parameter and enter a new value from the computer keypad. In addition, it's too bad the graphic displays for the zone keyboard ranges aren't updated as you adjust the low- and high-note parameters; the display doesn't change until you release the mouse button.

Once you've set the range for a zone, you can move it in relation to the entire MIDI note range using buttons labeled <<, <, >, and >>, which will transpose the range up or down by half-steps or octaves. Again, the display won't change until you release the mouse button. As long as you don't overshoot the lower or upper limit of the MIDI note range, the size of the range will be maintained. If you overrun the boundaries, the range will be squashed up against the limit until only a single note is defined as the low- and high-notes, and this zone won't sound because it's beyond the LMK3's physical keyboard range.

One of the most confusing aspects of MIDI

implementations on instruments from different manufacturers is the way patches are numbered. One synth will offer patches 000 through 127, another will have 001 through 128, and patches in a third could be grouped together in banks, so you might be looking for patch 3 in bank 4. It can be very difficult when using instruments that number patches differently in the same system. We bring this up because the current version of the LMK3 Screen-Editor software, which was programmed by a third-party developer for Doepfer, doesn't jibe with the LMK3 when it comes to patch numbers. The LMK3 uses the 000-127 method, but Screen-Editor goes from 001-128. Oops! Doepfer plans to change the LMK3 to the 001-128 scheme.

Screen-Editor's librarian functions cover most of the bases. The names of 20 of the 64 presets in each of the four on-line banks are displayed simultaneously. You can copy presets one at a time within the same bank or to another bank. Preset swapping and multiple-preset copying and editing functions would be nice, but those are beyond this program's capabilities.

All in all, Screen-Editor serves as a worthy programming interface for the LMK3. It would be even better if it worked as a desk accessory. Also, we're hoping to see generic editor/librarian support for the LMK3.

Sick Puppy. When we first started working

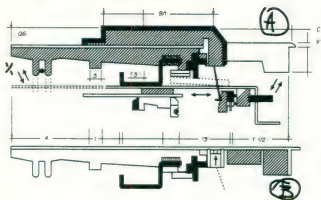
Continued on page 159

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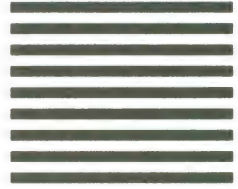
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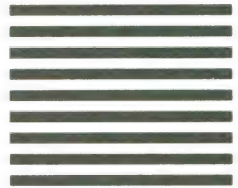
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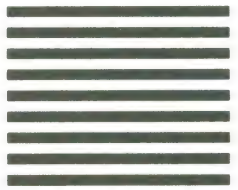
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GEARHEAD REPORT

Continued from page 60

stereo in-place solo, four-band EQ with two sweepable mid bands, and six aux returns.

And for no reason other than that their company name starts with a "Y," our last offerings come from **Yamaha**. The MC04II series consoles, which are designed for live production, are available in 12-, 16-, 24-, and 32-channel configurations (\$3,100, \$3,600, \$4,300, and \$5,800 respectively). The consoles feature four primary mix groups plus stereo mix, four aux sends, two stereo aux returns, four-band EQ with two sweepable mid bands, XLR and 1/4" inputs on all channels, a mix matrix, and phantom power. For those with less demanding requirements: the EM2820, an eight-channel, powered stereo mixer designed for fixed installations such as schools and churches.

MISCELLANEOUS STUFF 'N' SUCH

These whatnots, whosits, and whichesses may not change the world, but they just might make living in it a whole lot easier.

Got a couple of SCSI hard drives lying around the house? How about an Atari computer? Want to get them together? Well, now you can, thanks to **Hybrid Arts'** SCSI Module (\$159), which allows standard SCSI disks to be interfaced with Atari computers by converting DMA to SCSI. And if you've got a slew of SCSI drives and just want to get them all on line at the same time, get hold of **Greyt-sound's** DATA Director (\$249.95), which allows you to connect up to eight devices, such as keyboards and computers, and have them share a chain of SCSI drives.

From **Rane** comes a couple of doses of "pure genius" (their words, but who are we to disagree?): The MAP 33 (\$1,995), a MIDI-programmable acoustic mike preamplifier, and the MS 1 mike preamplifier (\$189). **Furman** displayed their UP-600 uninterruptable power supply (\$799) — nonstop, of course. They also had the PS-8 and PS-8R power sequencers on hand (\$329 each). These clever units come up with powerful sequences — albeit not the musical kind. Rather, they control the order that your equipment gets powered up and down.

No one hates excessive button-pushing more than *Keyboard* editors. But if you have to push 'em, it's always nice to know which ones to push when. It's **Harvey & Company** to the rescue, with their series of musikey and musikref template cards. The stackable cards, which are imprinted with keyboard commands for a variety of popular music programs, are designed to lay over your computer

Continued on page 151

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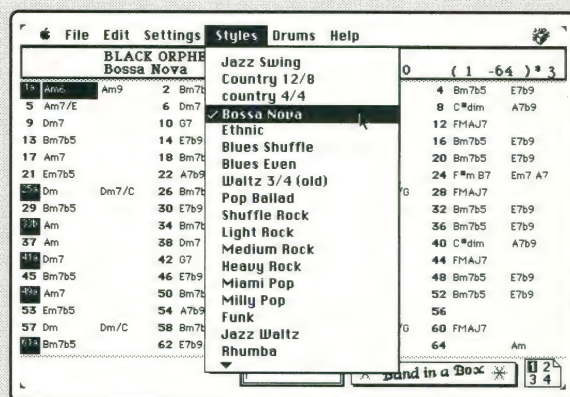
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SYNCHROVOICE MIDIVOX

PITCH-TO-MIDI CONVERTER

By Greg Rule

TRANSLATING HUMAN VOCALS into MIDI data has been the music industry's version of a prank snipe hunt: They lure us unsuspectingly into the chase, tease us with the promise of a payoff, then run away laughing at our gullibility. Okay, maybe it's not quite *that* bad. But pitch-to-MIDI converters have fallen far short of the hype over the years. Some products track better than others; Fairlight's Voicetracker did a surprisingly good job for its time. But God forbid Ella Fitzgerald should try to scat into one.

With each new year comes the hope of a pitch-to-MIDI converter that *really* works. This month we looked at a powerful and unique new product on the scene that raised quite a stir at the latest AES and NAMM conventions: the Midivox from SynchroVoice. Could this be the product that finally busts the bad track record (pun intended)? We put on our lab jackets and disappeared into the studio to see for ourselves.

Something New. Unlike any other pitch-to-MIDI converter currently on the scene, Midivox translates vocal cord movements (not audio signals) into MIDI data. Why trigger from the throat instead of the mouth? Speed, for one. According to SynchroVoice, "The human voice is remarkable for its first-cycle accuracy. By thinking the pitch, the vocal oscillator is set up ahead of the auditory pitch. Midivox starts the synthesizer before the nature of the voice attack has even happened." Another advantage to throat-based triggering is isolation from extraneous background noises. This is due to the type of sensors



used in Midivox's neck-worn collar, which we'll be getting into below. But first, let's take a tour of the brains behind the throat.

Get Smart. Midivox's rack-mountable "brain" is responsible for translating movements of the human vocal cords into MIDI data. There are five knobs, five buttons, and 23 LEDs on the unit's front panel to control and monitor this process. Two voice tracking modes, chromatic and legato, top the list of programming options. Here's how they work:

The workings of chromatic mode are, in certain respects, similar to those of a piano: Each note is defined by its note number and velocity. Simple enough, until you consider such things as slurs and vibrato. You see, pitch-bend and MIDI volume messages are not provided in this mode. So if, for instance, you sing a one-octave bend, it is translated as a 12-note

glissando (just like sliding your fingers across the keys of a piano). Vibratos are handled in the same manner: as a series of separate notes. This is similar to playing grace-notes or trills on a piano. Chromatic isn't as simple to use as it may sound, though (as we'll detail later).

Legato mode, on the other hand, handles notes similarly to the way a synthesizer does.

If you sing a note with vibrato, slur inflections, or dynamics changes, the Midivox cranks out a stream of volume and pitch-bend messages that relate to those nuances (this is, of course, in addition to note-numbers and velocity). Midivox keeps a close watch over each note as it develops by monitoring the collar input every 25 milliseconds.

Just for the record, when you bend a note over several octaves in legato mode (Mariah Carey, are you listening?), Midivox breaks it into one-octave segments — each containing its own group of contiguous pitch-bend messages. This process is transparent to the singer, but heck, we thought we'd tell you about it anyway.

Regardless of which mode you are in, the Midivox will not output aftertouch data. You'll need a MIDI mapper or processor capable of remapping volume messages to aftertouch in order to tap your synthesizer's aftertouch capabilities.

PROS & CONS

Pros: Fast triggering. Impressive tracking. Offers synthesized vocal effect output.

Cons: Expensive. No patch storage. No foot-switch connector for emergency muting. Sloppy documentation.

MIDIVOX

Description: Pitch-to-MIDI converter with neck-worn sensor collar.

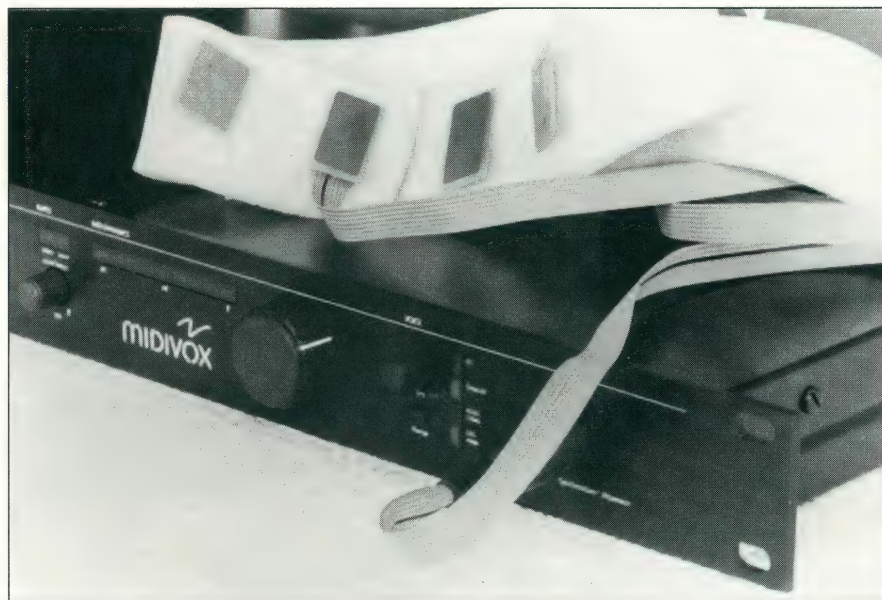
Features: Chromatic and legato tracking, flat and linear velocity curves, synth audition modes, front-panel LEDs for monitoring dynamic levels and other parameters, audio output for driving effects processors.

Interfacing: 8-pin sensor collar input, two MIDI outputs. Analog voice output, voice and level gate outputs, glottal pulse output (all 1/4" connectors).

Dimensions: 19" x 1-3/4" x 8". 7.5 lbs.

List Price: \$1,595.00.

Contact: SynchroVoice, 400 Harrison Ave., Harrison, NJ 07029. (201) 483-7416. Fax (201) 485-0266.



The Midivox trigger collar, atop the one-space rack-mountable brain, contains four radar-like sensors that track vocal chord movements.

SYNCHROVOICE MIDIVOX

The Outer Limits. The Midivox's electronics are housed in an attractive brushed metal enclosure (occupying one rack-space) with an uncluttered, logically laid-out array of controls across its front panel. Most prominent is a large MIDI dynamics knob and an accompanying nine-segment LED meter. Turning the knob widens or decreases the MIDI volume range. Directly to its left are two buttons for selecting a MIDI velocity curve. The "mf" button sets all notes to a fixed velocity of 64, while the "ff/pp" button provides a full-range, linear slope.

On the left side you'll find a pair of patch test buttons for auditioning your synth. When individually pressed, these buttons transmit an A-440 (note 69) and an A-110 (note 45) respectively. When each button is released, a one-octave glissando of pitch-bend messages and a group of MIDI volume messages are fired, followed by a single note one octave above the original. In conducting these tests, you might discover that you need to reset your synth's pitch-bend range.

The MIDI channel button allows you to select a transmit channel (from 1 to 10). Why SynchroVoice's designers chose to limit the unit to only ten MIDI channels instead of 16 is a mystery.

Also on the front panel is a sensitivity knob for controlling Midivox's audio gate outputs. These gates do not affect the MIDI functionality

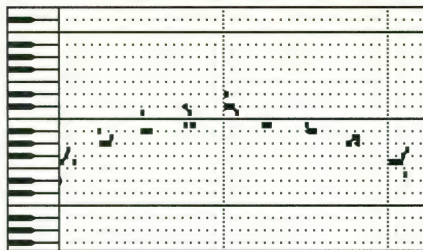


Fig. 1. Our first attempt to use chromatic mode produced the garbled results shown above. (See page 150.)

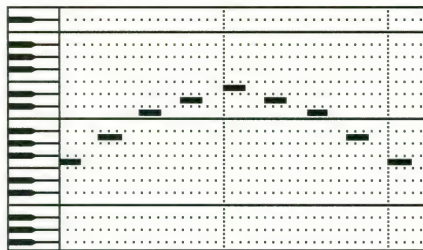


Fig. 2. When we switched to legato mode, our input was correctly interpreted.

of the unit, but are used specifically for controlling external devices. The voice gate is activated by note-on and note-off signals. The instant a note is sung, a steady 5-volt signal is emitted from the rear-panel gate output; as soon as a note is released, the signal is turned off.

If you aren't pleased with the response time of your traditional audio noise gate, for instance, you could use the Midivox's voice gate output to control it. The level gate, on the other hand, outputs a variable signal that relates to changes in voice loudness. Accompanying LEDs provide visual monitoring of each gate.

The back panel contains a pair of MIDI outputs (both transmit identical information), two gate outputs (as mentioned above), and a glottal pulse output (sends a rapid series of positive and negative pulses which are routed through a 800-to-1100Hz filter). The latter produces a growling, synthesized vocal-like sound that could be useful as a special effect. A more peculiar connector, the voice pulse output, relays raw voice pulses from the throat. One obscure use for this output, according to SynchroVoice, might be to drive another audio-to-MIDI converter.

The Biosensor Collar. Dubbed the "dog collar" by many NAMM show attendees, the Midivox sensor collar comprises a 2"-wide foam strip and four rectangular, gold-plated sensors. The sensors are not audio transducers or pressure sensors. They are pickups for a "resistance plethysmograph" (a device found in certain types of biomedical instruments). These sensors transmit a 5MHz signal into the neck and look for movements of the vocal cords — a radar-type process.

The more nervous among you might be wondering if sensors of this type pose any potential health risks when used over an extended

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period of time. According to Dale Teaney, President of SynchroVoice, they do not. "Hundreds of plethysmographs are approved, like ours, by the FDA. They are worn 24 hours a day by hundreds of thousands of ambulatory patients of all ages. Cardiac function, blood pressure, pulse, chemical status, and breathing are a few applications. All of them work on the same principle as Midivox and comply with the same rigorous standard."

We at Keyboard are not trained medical specialists, and your own physician probably won't be an expert in this area either. If you have any concerns, SynchroVoice suggests contacting a professor of Bioengineering or the British Standards Institution for additional information.

While we have no complaints about the performance of the collar, we were a bit disappointed with its construction: no fastening clasp (you have to tie the foam in a knot to keep it on), the foam strip is very thin and easy to tear, the trigger sensors fit loosely, and the 6' ribbon cable will probably prove too short for live performers who want to roam the stage. To SynchroVoice's credit, though, they are now offering an updated version of the collar, which we saw on display at the NAMM show. It has a synthetic fabric cover that protects the sensors and foam, plus a row of buttons and a fastening clasp. (We wished they had opted for a Velcro strip, though. That way everyone could have a perfect fit, regardless of their neck size.) And although no cable extensions were planned at press time,

The Midivox translates pitch messages into MIDI messages without audio pickups or a microphone. Once you're strapped on the collar, though, everything you say (or sing) is transmitted to the brain.



ION SEIVERT

the company does report that a wireless system is on the drawing board.

Aesthetics aside, there is one potential problem with the neck collar concept: Once it's strapped on, there's no escape. *Everything* you sing or say is transmitted to the module. Why is this a problem? Imagine this: You're onstage (collar fastened, MIDI modules connected) ready to perform. The house lights dim, the stage lights rise, and suddenly you start coughing or sneezing. These are not the types of MIDI messages you want blasting through the loudspeakers. SynchroVoice would have been wise to equip Midivox with a "panic" footswitch or button that would mute the unit when pressed. As it stands, you'll have to rig up some type of master volume pedal for your synths, or lunge at Midivox's sensitivity dial and turn it down before coughing or clearing your throat. Maybe that's

why the collar's cable is so short.

Test Drive. Our first order of business was the infamous idiot test — yank the unit out of the box, plug it in, and see how far we can go without reading the manual. This time around we failed miserably. The only thing we could make the Midivox initially do was send streams of nasty notes to the synth; we'd sing one pitch and the Midivox would spit out two or three unrelated others. But after venting our frustration (hopefully, Aikin will forgive the fist-size holes in his door, *just kidding*) we calmly began reading the manual.

First and foremost, we learned the importance of collar positioning. If the collar's four sensors are not securely and properly positioned — two on each side of the throat's center — the unit can behave erratically. Second, we learned to use the patch test buttons. (In case

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GEARHEAD REPORT

Continued from page 145

keyboard. Never again will you forget that CONTROL ALTERNATE SHIFT ESCAPE calls up the "save" function in program X, or that OPTION PAGE DOWN HOME SHIFT ENTER initiates sequence playback in program Y. At only \$5.99 each, the cards are inexpensive enough that you might even want to take home a couple of sets. Who knows? If you don't have to spend all of your time figuring out which keys to press, you might actually write a tune or two.

If you need some place to store those gigabytes of samples you've been stealing — er, recording — check out **Dynatek Automation Systems** Track series of rack-mount SCSI storage devices (prices not available).

Uptown introduced the Great Divide 2 audio distribution amplifier. Each of the unit's two channels has four outputs, making it suitable for use as a 1 x 4 stereo or 1 x 8 mono splitter.

What's that? You can't hear us? Try **Peavey's** Classic Series 120/120 power amp (\$899.99), a 120-watt tube amp that the company blithely refers to as a "brute." For those who prefer something a bit more tame, check out the Classic 50/50 (\$599.99), a tube-powered 50-watt version. In the same vein: **New Sensor Corp.** presented their PS 600 all-tube keyboard amp (price not available). But for those who prefer the sound of solid state, **Ramsa** is happy to oblige with their WP-1200 and WP-1400 power amplifiers (\$620 and \$780 respectively).

If you need to get rid of unwanted noise, try **BBE's** 122-SNR Spectral Noise Reduction unit (price to be announced), a single-ended noise reduction system that works without encoding and decoding the signal. And if you want to get rid of unwanted ignorance (not us, we'd rather stay in the dark), check out **Pyware's** Amadeus II (\$795 plus \$100 per software program), a teaching aid that contains a tuner, note-generator, pitch-to-MIDI

converter, and MIDI file creator, as well as offering remote control rhythm drills and pitch-development video games.

New from the standmasters at **Ultimate:** The Deltex II two-tier column stand (\$119), Ultilock tripods (\$125-\$194) and lighting trees (\$152-\$240), the Liberty mike stand, and the Axcel guitar stand (\$30). From **Quicklock:** The QL-677 tabletop stand (\$79.95), a host of wall-mount speaker stands (\$39.95-\$59.95), gig bags (\$10.95-\$44.95), and (hold on to your hats) a regulated power supply for Boss/Roland effects (\$7.50). And finally, **Bostac Co.** offered the Toy Boxes, a series of trays designed to be mounted on mike, key-

board, and cymbal stands, and hold devices such as drum machines and sequencers (\$19.95-\$24.95).

FINALLY FULL. . .

Mmm, mm. That was mighty fine eatin' (urrrp). Of course now we'll have to spend the next year trimming our system (it's getting a bit overgrown). At least once we're down to size, we'll have plenty of room to stock up on the crop of goodies that are bound to appear next year. My, my. We're already starting to feel hungry. Say, could you point us to the fridge?

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MISCELLANEOUS SOUNDS.

Stratus Sounds has released 55 sample disks for the Kurzweil K2000, including solo acoustic instruments (violin, viola, cello, flute, oboe, and sax), grand piano, various harps, and Latin percussion. Other disks range from acoustic and electric guitars to a 4Mb string ensemble. \$14.95 per disk. Demo tape: \$5.00, or send blank formatted high-density 3.5" disk with SASE. Stratus Sounds, 7505 Steamer Way, Sacramento, CA 95823. (916) 395-3365. . . .

Livewire Audio has expanded its product line with sound disks for the Yamaha SY99. Thirty disks are available, including analog and D-50-style synths, grand piano, bells, strings, guitar, and other acoustic instruments. All sample disks are also available for the Ensoniq EPS, Casio FZ, and Korg T-series. Prices start at \$11.95 per disk. Audio demo cassette: \$5.00. Livewire, Box 561, Oceanport, NJ 07757. (908) 222-1227. Fax (908) 229-6599. . . . **Electron Artistries** has announced five sound libraries for the Korg Wavestation, EX, and A/D. The Light Waves, Heat Waves, and Particle Waves sets feature acoustic and electronic instruments, percussive sounds, and special effect textures. Rhythmic Waves and Pulsar Waves include rhythmic and percussive patterns, bass-line patterns, and arpeggios. Split-layered keyboard arrangements and non-rhythmic instruments are also provided. Light Waves, Heat Waves, Particle Waves: \$49.00 each. Rhythmic Waves, Pulsar Waves: \$59.00 each. Electron Artistries, Box 40, Franklin, OH 45005. (513) 746-4283.

VALHALA PRODUCTS. The sounds on Valhala's Screamin' B-3 ROM card for the Korg M1 and M1R are organized into groups of drawbar settings and effect settings. Each of the 24 drawbar settings, which are used in both the program and combination modes, can be played through fast or slow Leslie or chorus, and through the Korg Leslie simulator (which requires an external EXP-2 effects pedal). Because a separate patch generates each pitch of percussion, any combination of drawbars and percussion is possible in combination mode. In addition to 80 ready-made draw-

bar/effect programs, the B-3 ROM card features 20 building-blocks (with a set of bass pedal sounds) for altering the existing basic drawbar sounds. Piano and glock effects and chimes (as found on the Hammond Concorde and X-

66 models) are also included. Also, Valhala is distributing the Musitronics PCM-EXpansion System. The PCM programmer (the heart of the system, which connects to the hard disk interface on an Atari ST) enables the user to program DC-PCM cards for the Roland D-70, U-20/220, and U-110. The software that supports the programmer allows samples to be loaded via the MIDI sample dump standard, and is compatible with Steinberg's Avalon universal sample editor. If a Roland D-50/550 is equipped with Musitronics' PCM EXpansion board, users can also program LA-PCM cards for this unit. The expansion board, which contains three drum kits, also enables 50 new PCM waveforms to be used

with any existing waveform in the D-50. RAM cards are available from Valhala with 128K or 256K memory. B-3 ROM card: \$50.00. PCM Programmer: \$599.00. PCM EXpansion board: \$469.00. RAM cards: prices not available. Valhala, Box 20157, Ferndale, MI 48220. (313) 548-9360. Fax (313) 547-5949.



← **CARLSBRO PRO-SERIES KEYBOARD AMP.** Carlsbro's Pro-Series K1 features a ten-channel stereo preamp with a pair of 3-band equalizers and a 250-watt MOSFET power amp. Both the preamp and power amp are detachable 19" rack-mount units. Any part of the unit may be purchased separately to allow the user to build a system from scratch. The K1 preamp carries an onboard power supply. £324.30 (approx. \$545.00). Carlsbro Electronics, Cross Drive, Kirkby In Ashfield, Notts NG17 7LD England. (0623) 753902. Fax (0623) 755436.

PASSPORT SOFTWARE UPGRADES (MACINTOSH, IBM). Passport Designs has announced Encore version 2.5, a composition and notation program that incorporates new fonts, such as a frets font for guitar compositions, the Adobe Sonata screen and laser printer font, and Adobe Type Manager. The Windows 3.0 version, which is compatible with multimedia PC specifications, offers additional printer capabilities. With MIDI input, a user can step-enter tied notes and select more than 50 chord names from the keyboard. Pass-

port has also upgraded Master Tracks Pro sequencing software for the Macintosh. In addition to direct SMPTE insert and multi-channel tracks, Pro 5 also features live punch-in, the ability to record up to eight simultaneous channels per track, and support for Mark of the Unicorn's MIDI Time Piece and Opcode's Studio 5 MIDI interfaces. A snap-to-grid feature improves the accuracy of the step entry of notes, while a multiple-mode master fader allows control over the faders. Other enhancements include recordable faders that link an automated mixer to the tracksheet, a show-velocity command that allows more control over velocity values, and a transpose map for converting drum parts and transforming sequences. Encore: \$595.00. Pro 5: \$495.00. Contact Passport for upgrade information. Passport Designs, 100 Stone Pine Rd., Half Moon Bay, CA 94019. (415) 726-0280. Fax (415) 726-2254.

PA-DECODER PRODUCTS. PA-Decoder's memory expansion for the Roland W-30 and S-330 can hold up to 13Mb of internal memory (6Mb of RAM and 7Mb ROM). After the basic board (one PA-Decoder RAM card) is installed, RAM cards and ROM ICs can be added by the user. A personalized ROM IC can be obtained by sending your favorite samples on disks to PA-Decoder, who will program them into the ROMs. PA-Decoder's SampleTools is an Atari editor/librarian for the W-30, S-330, S-50, and S-550 samplers that features direct handling and editing of sample disks, automatic collection and management of samples, searching and sorting options, and full compatibility with Steinberg's Avalon graphic waveform editor. W-30 expansion: \$600.00 (includes one RAM card); additional RAM: \$200.00 each. SampleTools: \$400.00. PA-Decoder, 1258 South Ogden Dr., Los Angeles, CA 90019. (213) 938-8924.

JEANIUS ELECTRONICS. Model RD-T is a table-top version of Jeanius Electronics' Russian Dragon. The Russian Dragon, which gives visual indication of the timing accuracy of musicians or machines, includes a row of 25 multi-colored LEDs that tells what's rushin' or draggin' and by how much. RD-T: \$175.00. Jea-



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nius Electronics, 2815 Swandale, San Antonio, TX 78230. (800) 880-8776 (orders only). (512) 525-0719.

SKB RACK CASES.

The SKB Case Company has introduced SKB A.T.A. rack cases, effects road racks that are available in two- to 12-space sizes. The racks, which meet all A.T.A. (Airline Transportation Association) specifications, are stackable and lock together to prevent horizontal movement. *Front and rear lids are deep draft to allow protection for the panel knobs, and are attached with stainless twist latches to prevent moisture and dust from entering the cabinet.* The racks are also pre-drilled for pinning or mounting inside shelves to support heavy equipment. Prices start at \$139.95. SKB, 3906 Sandshell Dr., Fort Worth, TX 76137. (817) 847-5400. Fax (817) 847-6319.

STEINBERG SOFTWARE (MAC-INTOSH, IBM-PC, ATARI).

Steinberg has released Cubase Audio, a direct-to-hard-disk recording and sequencing system for the Macintosh. This System 7.0-compatible update links Digidesign's Audiomedia, Sound Accelerator, SampleCell, and Pro Tools to the Cubase sequencing package. New features include waveform editing/combining, audio track mixdown, threshold-based noise reduction, a timing resolution of 384 ppq, and Steinberg's track class definitions. Other new Macintosh-based software programs from Steinberg are TimeBandit and an S1000 editor. TimeBandit is an off-line time, pitch, and harmonization program that edits digital audio files stored in Sound Designer I, Sound Designer II, and Audio IFF formats. The Akai S1000/S1100/S1100EX editor features on-screen editing of all parameters, a graphic overview of the unit, and automatic sample selection via SCSI on boot-up. The program also reads SampleCell files, is compatible with Apple's MIDI Manager, and will allow the S1100EX to function as a stand-alone unit. Steinberg's Cubase sequencing software is now available for the IBM-PC. The program, which requires a 386SX or above with



2Mb of RAM and Microsoft Windows version 3.0 or higher, features undoable quantize methods (even after saving to disk), a timing resolution of 384 ppq, and movable columns in the track list. The "toolbox" is available in key, drum, grid, and logical edit modes. The MS-DOS version supports Soundblaster and Soundblaster Pro boards, and is compatible with Roland MPU-401 and other MIDI interfaces. Steinberg has also upgraded Cubase Atari to version 3.0. Improvements in the program's score-printing facility include a user-definable score page layout mode, scalable page overview, drum notation, and polyphonic systems. Score, Interactive Phrase Synthesizer, MIDI Mixer, and MIDI Processor modules can be loaded into and removed from the main program at any time. The new version's track list contains a parameter mode that can define track classes as MIDI, drum, tape, mixer, or group. Cubase 3.0 also features a doubled timing resolution of 384 ppq, Atari TT compatibility, eight simultaneous mixer maps, and logical edit templates. Cubase Audio: \$795.00. Upgrade from Cubase 1.8: \$300.00. TimeBandit: \$495.00. S1000 editor: \$369.00. Cubase IBM-PC: \$299.00. Cubase Atari 3.0: \$579.00. Cubase Atari 3.0 upgrade: \$100.00. Steinberg/Jones, 17700 Raymer St., Ste. 1002, Northridge, CA 91325. (818) 993-4091. Fax (818) 701-7452.

THOUGHTPROCESSORS UTILITY (IBM-PC).

Thoughtprocessors' Showtune is a utility for printing

out standard MIDI files as music notation. The user can read MIDI files into Showtune, design page layout, view and edit music on the screen, and then print the notated file. Showtune reads up to eight tracks at once or selected tracks from larger files, prints up to 12 staves per page, transposes tracks individually, sets the key for all tracks or individually, splits tracks by pitch, and quantizes tracks together or separately. Other features include MIDI playback, four different clefs, and choice of stem direction. Each copy of Showtune includes a coupon for upgrading to Thoughtprocessors' The Note Processor. \$79.00. Thoughtprocessors, 584 Bergen St., Brooklyn, NY 11238. (718) 857-2860.

INSTANDT KEYBOARD STAND.

The GP-X is a portable multi-purpose X-style stand. Its adjustable upright supports can be configured to hold keyboards, guitar, bass, keyboard amplifiers, and small- to medium-sized speaker enclosures. The stand, which has an all-steel base with adjustable feet, can accommodate up to 100 pounds, has a minimum height of 25", a maximum height of 40", and folds to take up approximately 50% less space than conventional X designs. \$69.00. Professional Music Services, 66 Ash St., Saratoga Springs, NY 12866. (800) 828-9127. Fax (518) 583-3393.

DIGIDESIGN SOUND TOOLS UPDATE (MACINTOSH).

Sound Tools II is an updated version of Digidesign's Sound Tools stereo direct-to-disk recording and playback system that includes Sound Designer II stereo recording and editing software, Sound Accelerator II digital signal-processing card, and a Pro Tools audio interface with four channels, balanced analog I/O, and AES/EBU and S/PDIF digital I/O. (To go beyond four channels, Sound Tools II can be upgraded to a Pro Tools system.) In addition to non-destructive

playlist editing, waveform editing with single sample resolution, and real-time parametric/graphic EQ, the system features real-time dynamic compression/expansion/noise gate processing, stereo time-compression/expansion, and pitch-shifting with time correction. Sound Tools II supports four-channel recording and playback with digital audio sequencers and Digidesign's Deck 2.0, Opcode's Studio Vision, Mark of the Unicorn's Digital Performer, and Steinberg's Cubase Audio. The system also offers 16-bit sampling with 44.1kHz and 48kHz sample rates, 2:1 or 4:1 data-compression options, sample editing/transfer, and continuous SMPTE resynchronization. \$3,495.00. Digidesign, 1360 Willow Rd., Ste. 101, Menlo Park, CA 94025. (415) 688-0600. Fax (415) 327-0777.

RANE PRODUCTS.

Rane Corporation has released the model SM 82, a single rack-space mixer with 16 separate 1/4" balanced line inputs arranged in eight stereo channels. Each channel has its own stereo level control, stereo auxiliary send, and balance control. Other features include stereo aux out and return with return level control, master stereo level control, and stereo expand and loop jacks. A built-in gain stage provides a -10/+4dB equipment interface. Rane's ME 60 is a stereo 1/3-octave graphic equalizer with two independent channels of constant-Q filters from 25Hz to 20kHz in a single two-space rack-mount chassis. The unit's connector hardware includes balanced XLR, 1/4" TRS, and unbalanced RCA jacks for both inputs and outputs. The ME 60 also features sweepable low-cut and high-cut filters, separate overall level controls, and LED-indicated bypass switches. SM 82: \$599.00. ME 60: \$649.00. Rane, 10802 47th Ave. West, Mukilteo, WA 98275-5098. (206) 355-6000. Fax (206) 347-7757. ■



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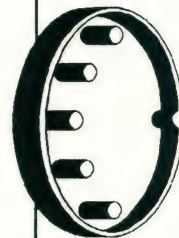
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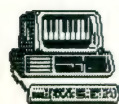
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DOEPFER LMK3

Continued from page 144

with the LMK3, we found that our review unit suffered from sporadic fits of amnesia. About every third time we turned it on, it forgot all the preset assignments that we'd programmed, defaulting to a dumb state wherein practically all the controllers were disabled. The manufacturer provided us with a replacement circuit board and an alternate AC adapter. After we installed the new circuit board and changed power supplies, the forgetfulness problem disappeared.

Conclusions. In spite of its roundabout operating system, the LMK3 offers a respectable supply of features for real-time MIDI control, packed in a transportable box that won't take long to set up. Yeah, it could have more MIDI outs, more sliders, and a friendlier operating system. It could have cost a few hundred clams more too. At \$1,595, it measures up as a pretty fair bargain for the studio or the road.

For the past six months, the LMK3 has been the master keyboard in the hippest MIDI setup at *Keyboard* central. Although some visitors took longer than others, most warmed to the LMK3's action. Overall — especially after the circuit-board overhaul — it worked out well. Now that it has to go back, it will be missed. . . . But not for too long: We're expecting some pretty feature-intensive keyboards soon from the likes of Fatar and Peavey. ■



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IMPROVISATIONAL PIANO

Continued from page 115

ward adheres to the idea behind this routine. Check out this month's four-bar excerpt from "Big Beat," the first cut on *The Fabulous "Mr. D"*, recorded in 1958. With the bass plugged into an up-and-down quarter-note walk and the drums laying down a simple beat, Domino restricts himself to an upper-register figure, which he plays in literally every bar of the song. (It does move with the chords, of course, but always stays in the same inversion.)

Clearly, the way that a rhythm works will affect the ideas and execution of soloists as well as section players. Rather than ignite something unexpected, soloists working in a rock/jigsaw format will often conform their improvisation to the unrelenting groove. The point of a solo subtly shifts, from exploration of a tune's nooks and crannies to "playing it safe" by emphasizing, rather than looking beyond, the beat. Where the saxophonist in, say, a bebop quartet might turn a tune inside out in search of fresh perspectives, the tenor sax solo in "Big Beat," the beginning of which is shown here, is little more than a recitation, with very slight variations, of the melody sung previously by Domino.

The implications of the rock/jigsaw method for both sidemen and soloists are obvious. Next time around, we'll start taking a closer look at them. ■

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LETTERS

Continued from page 14

Sequencers Overboard!

Is it just me, or is everyone tired of seeing workstations that somehow do it all without really doing anything new? I really like keyboards like the 01/W, SD-1, and SY99, but what bothers me is that they all have those stupid on-board sequencers. What good does it do to have a sequencer on a 32-voice keyboard? Most of the good sounds require two or more voices, which reduces your voices to 16. Use 15 of these, and you've got one voice left. Unless you want to play lead solo lines all night, this is totally useless. Besides, any serious keyboardist already has a dedicated hardware or computer sequencer.

My message to manufacturers: No more on-board sequencers. I would prefer to see prices lowered or the money put elsewhere. (Hint: more polyphony.)

J. Wilkinson
St. Petersburg, FL

Errata

[Last month's *Mind Over MIDI* column contained an incorrect phone number. The number for the MIDI Manufacturers Association (MMA) is actually (310) 649-6434.] ■

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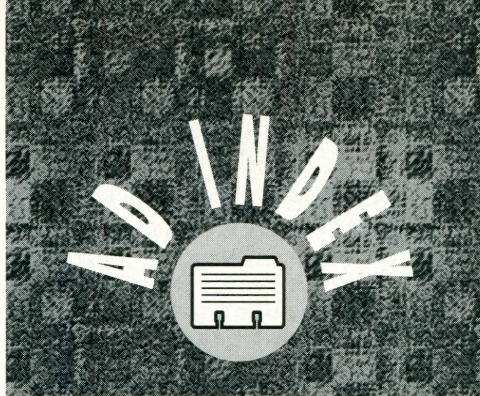
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